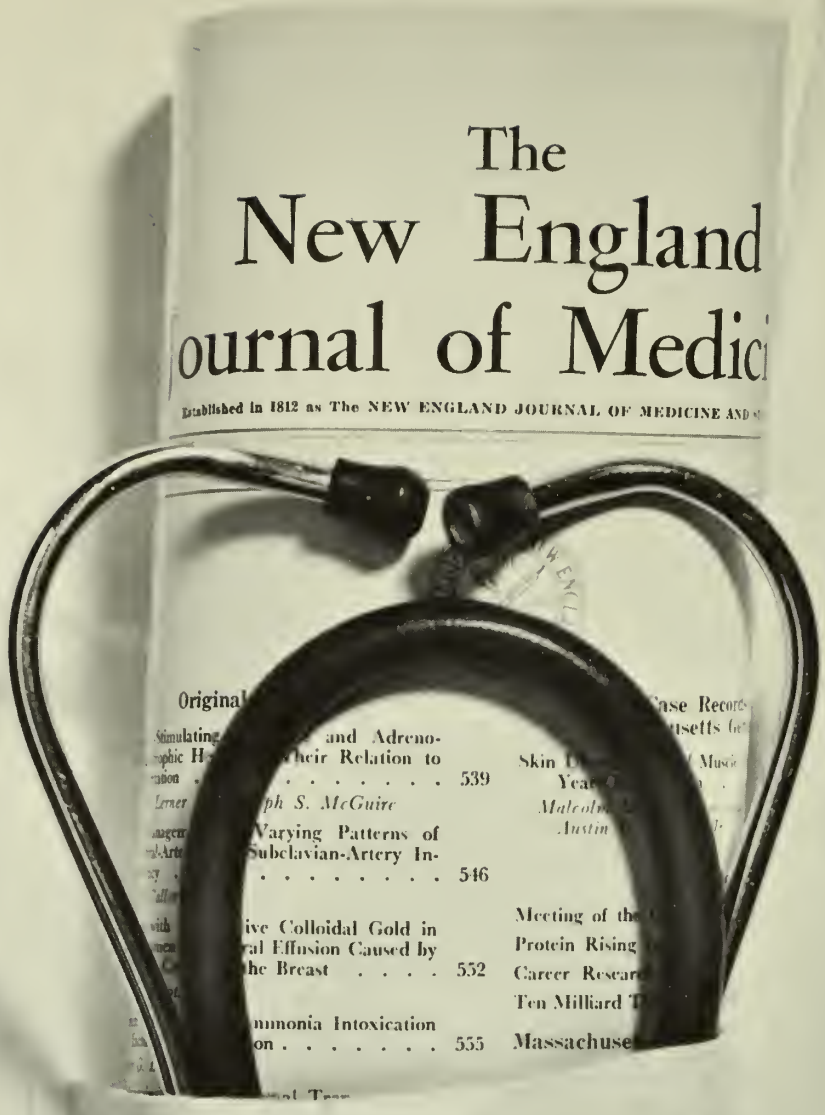
Harvard Medical Alumni Bulletin

Winter 1969



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HARVARD MEDICAL
ALUMNI BULLETIN
Vol. 43 Winter 1969 No. 3

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CREDITS: Cover designed by Richard S. Emery; cover photograph, Ray Atkeson from A. Devaney, N.Y. Photographs: The Baltimore Sun Papers, p. 11; Bradford F. Herzog, p. 16.

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A New Approach to the Financing of Medical Education

by Karl Shell

THE cost of medical education is rising at a very rapid rate. How is this cost to be financed, while the independence of private medical schools is maintained? In the face of rising tuition charges, how can the number of practicing physicians be substantially increased? And how can we hope to increase substantially the participation in the American medical profession of our disadvantaged minorities?

I propose that the federal government establish a Contingent Repayment Loan Scheme for the purpose of financing the education of medical students. Following the Panel on Educational Innovation[1], we might refer to such a scheme as the Educational Opportunity Bank. The Bank would be authorized to borrow money at government rates and lend money to medical students, regardless of the student's resources. Ideally, the student should be able to borrow an amount sufficient to cover tuition, fees, and subsistence cost (including room and board charges). In exchange for the loan, the borrower would pledge a given percentage of his annual income for a fixed number of years after completion of his medical education. The Bank, when fully established, would co-ordinate its activities with the Internal Revenue Service in collecting repayments. The scheme would be designed so that in the long run the Bank would be selfsustaining and would require minimal, if any, subsidization by the federal government. For example, preliminary calculations suggest that if the repayment period is limited to the twenty years beginning with the physician's first year of practice, then the medical student should be able to borrow funds for the full cost of his medical education in return for a pledge to pay three percent (3%) of his medical earnings in each of his first twenty years of professional practice.[2]

Professor Shell is associate professor of economics at the Wharton School of the University of Pennsylvania.

This article is based on informal remarks made on November 2, 1968, at a meeting of the Council of the Harvard Medical Alumni Association. The author is currently embarking upon a study of the financing of medical education, which is being supported by the Carnegie Commission on the Future of Higher Education and the Alfred P. Sloan Foundation.

Advantages of a Contingent Repayment Loan Program for Medical Education

In our society, investment in education cannot be financed on the same terms or with the same ease as investment in machines or in houses, or indeed, purchases of automobiles. The reason for this is quite simple. When one borrows to purchase a machine, the lender will get some security for his loan in the form of a residual claim upon the machine. If the borrower defaults on the loan, the lender can claim his machine. On the other hand, if a loan is made to finance an individual who does not possess any *tangible* assets, the lender possesses no such security. However, the Ed Op Bank would be able to make such loans because it would be able to employ taxation powers similar to those of the Internal Revenue Service to ensure that the pledge be fulfilled. (It is not merely that a conventional loan is "risky," it is almost an invitation to default. The individual with few tangible assets and large debts will

be quite tempted to declare himself bankrupt. Think about the case of a brilliant medical student who has amassed large conventional debts. His only *tangible* asset is that second-hand sofa in his student apartment. Even though his prospective income is quite dazzling, without strong moral fiber he must be tempted to declare himself bankrupt. He thus erases his conventional debts while only losing possession of his second-hand sofa. Parenthetically, we still "need bankruptcy laws in order to insure individual freedom. Without the possibility of bankruptcy, the danger of men entering involuntary servitude would be great.")

There is a further difficulty that we associate with the process of investment in education (or investment in human capital — as economists call it). That is the inherent riskiness of the return from the individual investment. Although the average anticipated return may be high, as in the case of medical education, there is still a large variation about this average. Thus, an individual who is reluctant to borrow money in the form of a conventional fixed money repayment loan may be prepared to borrow in the form of a contingent repayment loan where, if his lifetime income is low, repayments are small. I think this is especially true in the case of the financially poor high school or college student unfamiliar with professional salaries and their expected rates of growth. The Ed Op Bank mutualizes the risk of investment in education in the same way that fire insurance mutualizes the risks of investment in housing.

There are at least two advantages of a Contingent Repayment Loan scheme over a program relying heavily upon federal scholarships, or indeed over a program relying heavily on scholarships no matter what the source. (1) Many of the benefits of medical education accrue to the individual medical student. This makes it desirable that the individual student be involved in a "cost-benefit" evaluation of his education. Of course, there are benefits from medical education that are diffused throughout society and do not accrue to the specific "buyer" of medical education. For this reason it may be desirable that the "average interest rate" charged by the Conditional Repayment Loan Scheme be lower than the market rate of interest. (2) Because of its immediate impact on the federal budget, any federal scholarship program is like to be limited in scope. If it is restricted to tuition and fees, financially poor students who cannot afford to pay for room and board and other subsistence costs will continue to be excluded from medical school. If it is restricted to academically elite students, then students who are not destined to be at the very top of the class, but may benefit a great deal from medical education, would be excluded. This might include students from disadvantaged areas, where currently medical care is the poorest in our country. In summation: Because the Ed Op Bank would improve an imperfect capital market while encouraging prospective students to balance costs and benefits in making decisions about education, the Bank is likely to promote a more economical use of our resources than a program relying heavily upon federal scholarships.

Similarly, the Ed Op Bank is to be preferred to a system relying heavily on federal income tax credits or deductions for parents of medical students. Tax credits and tax deductions may ease the burden on middle class families, but will not be very helpful to the financially poor student.

There are certain advantages of a Contingent Repayment Loan Scheme that derive from the fact that the program would be co-ordinated with the federal income tax. This coordination should allow for negligible costs of collection. But more important, it makes it possible to collect repayments over long periods (twenty or thirty years) and makes the contingent repayment feature feasible.

THE point is this: Our society possesses tolerably good institutions for investment in things (machines, structures, and so forth). Our institutions for allocating investment resources to people (especially in education) are substantially less than perfect. I would like to see us develop some institutions that will improve our society's ability to invest in people. I think that the Ed Op Bank will very much improve the allocation of resources to our post-secondary students. Such an arrangement is especially desirable for medical students, where the educational process is so long, the ultimate expected rewards are so high, the shortages of medical personnel are so great, and where it is especially imperative that we open our medical institutions to members of the black community and other disadvantaged groups.

It is my opinion that an Ed Op Bank would have enormous potential for financing medical education. (At the same time, I also feel that an Ed Op Bank for medical studies would be a useful social experiment, a pilot project for a larger scheme designed to cover all post-secondary students.) But what are the prospects that such a scheme will be initiated in the immediate future? There is, I must confess, substantial opposition to the general idea from administrators of public universities, who incorrectly believe that such a scheme is a threat to their continued contribution to American education. So I cannot say that the over-all prospects are extremely bright; on the other hand, the prospects are by no means dim. The idea is important and I believe will be widely accepted in the United States one day. In the meantime the advocates of such a program should improve the climate as best they can. There is no reason why (at least on an experimental basis) the scheme could not be privately sponsored at its inception. It might be supported initially by a consortium of medical schools or medical alumni associations. Conventional scholarship money could be multiplied in productivity if used as seed money for an Ed Op scheme. Indeed, a medical school could further multiply this seed money by employing it as a guarantee to a conventional lender. The possibilities for such action are quite abundant and are probably best left to the imagination of medical school deans and alumni associations.

The "Opt-Out" Provision

I often encounter one particular technical question about the Educational Opportunity Bank.[3] There is the worry that because of expected high repayment rates, the most promising students will avoid incurring conditional repayment loan obligations. If this were to become the case, the program would be unstable, because the prospects of the remaining students might be poorer than average, requiring higher repayment-tax rates than would otherwise be the case. The Panel on Educational Innovation has recommended a remedy to this problem of adverse selection. The remedy, which I heartily endorse, is that a borrower be allowed to "buy out" of the program, treating his loan as a conventional six or six and a half percent loan, if that is to his advantage. For purposes of buying out (or "opting out"), a borrower's previous repayment taxes would be credited toward payment of interest (at say six percent) and reduction of the principal of the loan. This provision minimizes adverse selection of participants in the scheme.

Since a contingent repayment loan also provides life insurance, health insurance, and income insurance features, I think that such a loan at six percent rate of interest (or even somewhat higher) should be desirable even to those students who feel that they have exceptionally good prospects. Another closely related technical question that often arises: I envisage that the Internal Revenue Service would treat Ed Op loans in the same way it treats mortgages and other loans. For purposes of personal income taxation, payments to the Ed Op Bank which could be interpreted as interest on a 6 percent loan would be deductible from income. The remaining payments, if any, would be interpreted as reduction in the principal and would not be deductible from income.

The Ghetto Student

I think that the social need to encourage black students (and other students of disadvantaged backgrounds) to enter the American professions, especially the medical profession, is very great indeed. The Educational Opportunity Bank, while facilitating the goal of fuller participation in American professional life, certainly cannot be expected to do this job alone. The point I wish to make is that a Contingent Repayment Loan scheme need not in any way interfere with programs designed to achieve this laudable goal. Indeed, following the Panel on Educational Innovation there is no reason why an Educational Opportunity Bank could not be complementary to an Educational Opportunity *Grant* scheme for medical students. Thus a student from a financially poor family might be given a grant depending upon family income while paying for the rest of his medical education from funds borrowed from the Educational Opportunity Bank.

FOOTNOTES

1. *Educational Opportunity Bank: A Report of the Panel on Educational Innovation,* Washington, D. C.: U. S. Government Printing Office, 1967.

2. In the literature on the economics of education, loans in which repayment is made to depend upon future income are referred to as Contingent (or Conditional) Repayment Loans. The feasibility and desirability of various Contingent Repayment Loan schemes have been discussed by several authors including Milton Friedman, "The Role of Government in Education," in R. A. Solo (ed.), *Economics and the Public Interest,* New Brunswick: Rutgers University Press, 1955, pp. 135-143. For a detailed study on the feasibility and desirability of such a scheme for undergraduate education, see K. Shell, F. M. Fisher, D. K. Foley, A. F. Friedlaender, (in association with J. Behr, S. Fischer, R. Mosenson), "The Educational Opportunity Bank: An Economic Analysis of a Contingent Repayment Loan Program for Higher Education," *National Tax Journal,* Volume XXI, No. 1, March 1968, pp. 2-45.

3. For a full discussion of the myriad technical questions see Shell *et. al., op. cit.* .

HARVARD MEDICAL SCHOOL ANNOUNCES

The William O. Moseley, Jr.

Travelling Fellowships

THE BEQUEST OF JULIA M. MOSELEY MAKES AVAILABLE FELLOWSHIP FUNDS FOR GRADUATES OF THE HARVARD MEDICAL SCHOOL FOR POSTDOCTORAL STUDY IN EUROPE.

The Committee on Fellowships in the Medical School has voted that the amounts awarded for stipend and travelling expenses will be determined by the specific needs of the individual.

In considering candidates for the Moseley Travelling Fellowships, the Committee will give preference to those Harvard Medical School graduates who have—

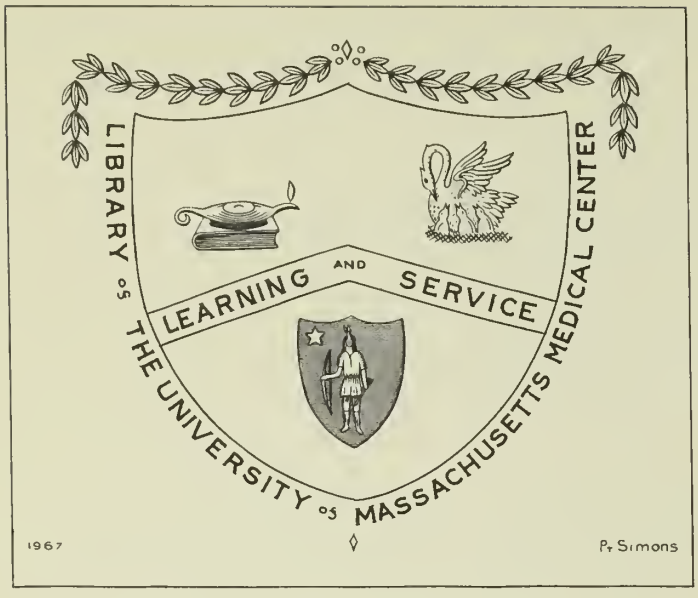
1. **Already demonstrated their ability to make original contributions to knowledge.**
2. **Planned a program of study which in the Committee's opinion will contribute significantly to their development as teachers and scholars.**
3. **Clearly plan to devote themselves to careers in academic medicine and the medical sciences.**

Individuals who have already attained Faculty rank at Harvard or elsewhere will not ordinarily be considered eligible for these awards.

There is no specific due date for the receipt of applications or for the beginning date of Awards. The Committee will meet once a year in January to review all applications on file. Applicants will be notified of the decision of the Committee by January 31. The Committee may request candidates to present themselves for personal interviews.

Application forms may be obtained from, and completed applications should be returned to:

Secretary, Committee on Fellowships in the Medical School
Harvard Medical School
25 Shattuck Street, Boston, Massachusetts 02115



University of

IN September 1970 the twentieth medical school ever to have been established in Massachusetts and the fourth ever to have been licensed to educate physicians in Worcester will open its doors in that city. Initially, the classes will be small as it will occupy quarters in a remodelled building on our property at the corner of Lake Avenue and Belmont Street. Two years later the Medical Science Building and Hospital will be ready for occupancy, permitting an expansion to 100 students in a class.

The development of a new school is a process of variable length and difficulty, depending upon local circumstances and financing. Because of the problems in obtaining sufficient funds, fewer and fewer private schools are being built and more State ones are coming into being. A number of State schools in the past have tended to economize in construction and salaries to the point that some of them are quite marginal. The Universities of California and Colorado have been notable exceptions to this. Fortunately in Massachusetts both the University Trustees and the men in public office have been determined from the start that our school should be of a quality comparable to other schools in the Northeast. This attitude is widely shared by physicians in Massachusetts and by the three medical schools in Boston. To produce a school of high quality that can serve the State for a long period of time requires a number of important steps. The most vital is the recruitment of an excellent faculty. A school of established reputation can do this more readily than can a new school, but the latter has certain advantages on which it can capitalize. It can design its physical plant so that it is easy and convenient to work in, with the appropriate amount of space for faculty offices and laboratories in order that the ordinary scholarly activities of teaching and research can be readily implemented. If it builds its own hospital attached floor by floor to the school, good patient care can be more easily achieved than at places where the buildings are separated. More important, perhaps, than the physical plant, are the freedoms that the faculty has in its own organization and recruitment, and its development of the school and its teaching programs. At those schools where a few planners have designed everything including the curriculum, faculty recruitment has been difficult; whereas at others where each new faculty member regards himself as having an important share in all aspects of planning and future appointments, the challenge to an able young man who is eager to build a department is great.

The architecture is of considerable importance. The plans must incorporate an extremely functional design, capable of easy expansion at a later date, and permitting the attachment of other schools and hospital buildings. It must be sufficiently handsome and authoritative to make patients, students, and faculty feel that they are at a leading medical institution, and lastly, it must be reasonably economical of public funds. Specific areas and rooms requiring highly specialized planning demand the advice of experts. For example, a diagnostic X-ray suite or a physiology laboratory should be planned under the direction of specialists. Fortunately for us at the time when we had little faculty, yet major planning had to be achieved, we were able to get excellent help and supervision from people in the hospitals and schools in Boston, particularly from many members of the Harvard faculty who gave unstintingly of their time. If our buildings, plans, and recruitment are successful, it will be because of this great support by Harvard which we received when we needed it most.

The recruitment of students is another interesting problem. At the present time over 500 Massachusetts residents apply to medical schools each year. About a half get in, and four-fifths of those to schools out of State. Upon investigation of a single year, 1965, we found that the average Medical College Admissions Test scores for Massachusetts students unable to get into school were higher than the average for those admitted to medical schools in the Northeast. With new facilities, curriculum, and a young and eager faculty, as well as a low tuition, we can anticipate a large number of applicants from Massachusetts. We will have no restrictions about out of State students, but their tuition will be competitive with those at the three schools in Boston. At the University of Massachusetts, about 5% of students are from out of State.

Massachusetts Medical School

by Lamar Soutter '35, Dean

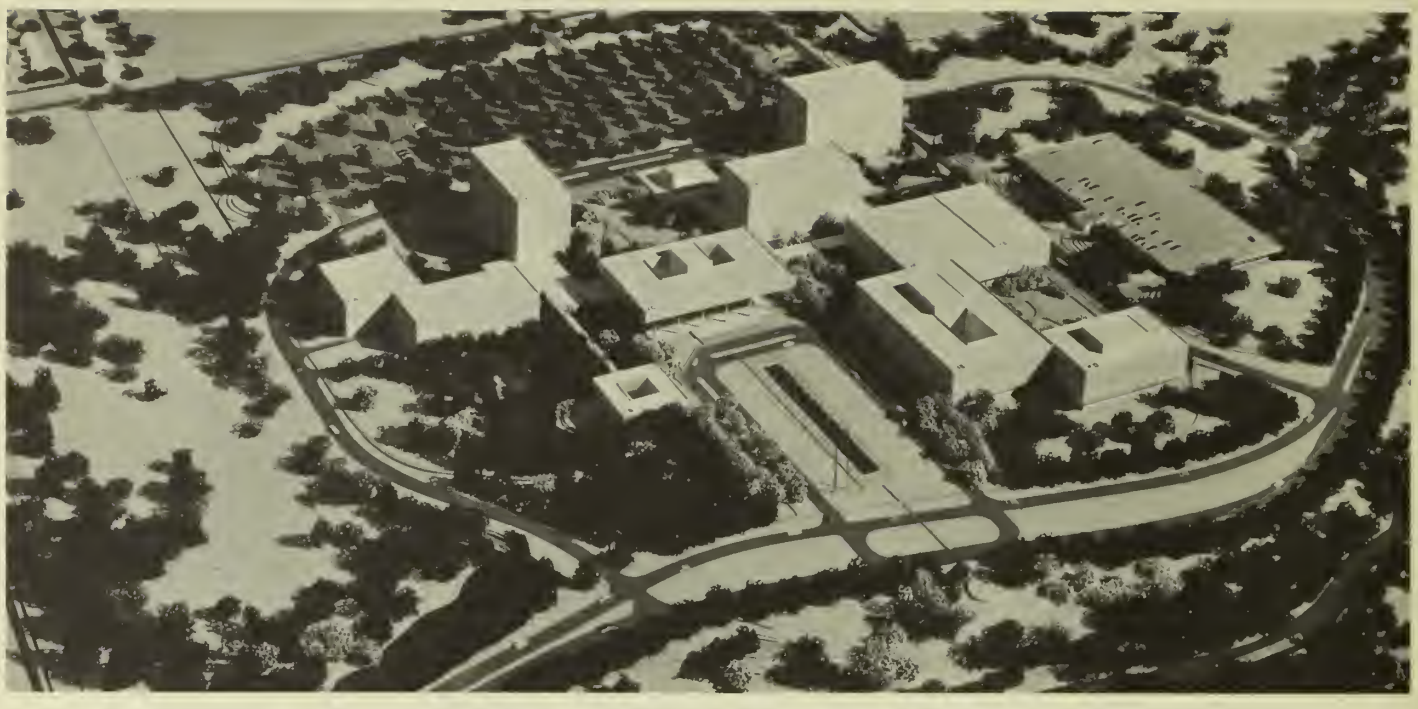
One of the most pleasant tasks at a new school is designing the library. Our medical center being primarily an institution of learning, we placed the library as its center, readily accessible to both the school and the hospital. In it will be over 300 carrels where students and faculty can study and work, locking up their materials when not in use. It will contain rooms for the use of T. V., magnetic tapes and other audio-visual materials. It will be completely computerized for the efficient and economical control of books and periodicals that will provide a great saving of time and effort by staff and readers. We have acquired the library of the Pittsburgh Academy of Medicine, an excellent clinical collection of some 25,000 volumes, mostly bound journals, and a 5000-volume collection of basic science journals. Current periodicals will have been accumulated for five years when the school opens, with many longer runs of important journals. The Worcester Medical Library, the third oldest in the country, will join us when we open, with its small but distinguished collection. We studied book plates at a number of places, including the New York Public Library and the Boston Athenaeum. We selected a design for the initial plate but required an artist to draw it. We found an extremely capable young graduate of the Boston School of Fine Arts who was eking out his living by painting lurid scenes on bar room walls. He regarded our job as a step up in the world. Needless to say, with his experience he did an excellent job.

Affiliations are a problem for a new school. We are anxious to use good community hospital programs for teaching as are many schools, but these affiliations in the clinical sciences should be made upon recommendation of departmental chairmen, just as ones with the Worcester Foundation should be. To date, some 24 hospitals in various parts of the State have applied for affiliation. Those we need and can implement will be made just before the school opens, at about the time we have all of our departmental chairmen.

The site for the school is a good one, despite the controversy over its selection. Like the other schools in the State, it will not be on a University campus. But when Worcester was selected, we found enough land (124 acres) with access to 225 adjacent acres, so that when some years hence the land at Amherst and in Boston is fully occupied, the third campus of the University will be built with the Medical School. We may not have succeeded in getting the Medical School to the campus, but eventually we will bring the campus to the Medical School. By that time, if we develop as have other State schools, we will have schools of nursing, dentistry and the allied health professions, and will have expanded both our Medical School and Hospital. A State school should be a health resource capable of furnishing all of the people needed to provide health care in the hospitals and communities of the State. We also should participate in community programs for the improvement of health care and the involvement of future physicians in supplying complete health and welfare services to the public. To do this we have a Chairman of Community Medicine who was instrumental in setting up the excellent program at Kentucky. In the sphere of mental health, community programs may be developed in cooperation with the State Department of Mental Health.

It is perhaps well to mention finances. The Legislature and the Governor have been very good about providing capital funds. A Federal grant for construction of the school has been approved and funded. One for the hospital is pending. We are not anticipating any great problems over obtaining funds for construction at this time.

One last bit of planning should be mentioned. We feel (several of us, that is) that there should be the time and opportunity while at medical school and during hospital training for physical exercise and athletics. We have tennis courts, a football field, a baseball diamond and an enclosed hockey rink within a mile of the school. We will build a gymnasium and a swimming pool. Immediately adjacent to our site is Lake Quinsigamond, with sailing, swimming, and rowing available. The Eastern Sprints are held here yearly. Oarsmen at college who intend to go into medicine will be attracted to our school. Who knows but the U.S. in the 1984 Olympics will be represented, not by Harvard or the Vesper Rowing Club, but by our Medical School.



Medical College of Ohio at Toledo

by Glidden L. Brooks '37, Dean

IN a time of proliferating new schools of medicine, the Medical College of Ohio at Toledo enjoys the momentary distinction of being the newest of the new. Established by legislative fiat (and accompanying fiscal appropriation) in the waning days of 1964, this school acquired a board of trustees and, in 1965, some 360 acres of building site in Toledo. In July, 1966, a President was appointed (HMS '37) and since then some 50 faculty persons have been assembled in temporary facilities and a Dean (Pennsylvania '45) appointed to preside over their academic efforts. In short, progress has been sufficient to permit the admission of a pilot entering class in the fall of 1969. Thus we are at one with the newborn babe in having survived incubation and parturition. We have now but to grow and develop.

When the editor of the *Harvard Medical Alumni Bulletin* asked for a brief article dealing with the achievements, aims, and general problems of our school (presumably in that order), the writer was immediately flattered into submission. The stationery alone, with crimson shield and rampant lion defending his VE-RI-TAS, would have turned the trick. After the crimson blush has faded, comes the cold reckoning — what does one say about a school whose sole achievement so far is survival?

Clearly it should be, and is, our *aim* to establish a medical school of quality and stature. Such a school should provide its students with that broad comprehension of modern medicine and familiarity with its techniques that will provide a firm base for his future career in the field or specialty of medicine of his choice. Furthermore, it should furnish him with the widest possible choice — ranging from one of a cloistered academic life to that of solo practice of medicine on one of the remaining frontiers. The school must also equip the student for a lifetime of independent study in medicine to a degree of depth and application well in excess of the present habits of continuing education in the profession. In these and obvious corollary aims the Medical College of Ohio at Toledo does not differ conspicuously from the majority of medical schools today.

Having thus disposed of achievements and aims, the remainder of this discourse will concern itself with the problems that beset this new school. Here again we share in those vicissitudes which today appear to be common to medical schools, new or old. These include money, the need to attract and hold desirable faculty and students, the dilemma of trying to preserve the best of present medical education and, at the same time, anticipate the trends into the fast-approaching, twenty-first century, and the urgency of public and professional expectations and demands upon medical schools. These problems are modified to a greater or lesser degree by the newness of the Medical College of Ohio at Toledo. Being new is our most salient characteristic.

The most frequently rediscovered problem of medical education is "ferment." If one yields to the temptation to believe that this condition is new, he is usually confounded by a more scholarly colleague who dredges up a whole series of quotations starting with Hippocrates and echoing down the centuries, all to the effect that medicine (and hence medical education) is "fermenting" or "at the crossroads" or "on the threshold" or otherwise disturbed by the process of rapid change and the need to adjust to it. This apparently built-in phenomenon of medicine produces, for a new medical school, a peculiar set of problems which

stem from a surfeit of opportunity.

Our new faculty expect, and are expected by their peers, to take every advantage of our freedom from the pressures of tradition and established interests to pioneer and to innovate. Many such dreams for a new school are destined to founder on the twin rocks of *time* and *expectation.*

A new medical school has far less time for careful planning and contemplative program design than appears commonly to be supposed. Sources of support — in our case, the State of Ohio — are maintained by performance, not by development. Without students and, ere long, without tangible production of new physicians, public interest and support will soon be withdrawn. In harried moments we have an uneasy feeling that our mandate is to "add water and have instant medical school."

Medicine being a conservative profession, its members (and through their guidance, the public) tend to expect the familiar. There are in Toledo a majority of physicians who have the highest hopes, friendliest of attitudes, and great expectations for this medical college. More often than not the individual physician bases these expectations on a blurred vignette of the medical school he attended, just as he saw it, with all of its virtues and none of its faults. We are expected to be like other medical schools, not only by our friends and neighbors, but by our colleagues who sit in the judgment seats of the mighty and counsel the providers of tax-based support.

These twin modifiers of our capacity to innovate — problems, to be sure — are also supportive in that suitable restraint must be exercised and our curricular and organizational innovations must prove themselves. Indeed, the innovations that our faculty and administration have thus far proposed are, for the most part, quite in line with those being considered or attempted by most medical schools. These include: integrated organization and curriculum so that departmental and disciplinary lines may easily be breeched or rearranged; more attention to conceptual rather than substantive instructional content; individualization of student experience by maximizing elective opportunities; acceptance of the student as a full member of the scholarly community; reliance on independent study — *learning* rather than *teaching;* strong community orientation and participation; increased attention to education beyond the award of the M. D. degree; optimum exposure to research and constant attention to maintenance of quality standards in the face of pressures for enlarging numbers of students.

It is a popular belief that a school of medicine must be a part of what is usually called a "parent" university. The writer adheres to the philosophy that underlies this belief. Yet the General Assembly of the State of Ohio created the Medical College of Ohio at Toledo as a free-standing, independent institution sans parentage, save for a distant but important relationship to the State Board of Regents, which is concerned broadly with the total development of higher education in Ohio. We have two neighbors in northwestern Ohio who are also state-assisted institutions of higher education — the University of Toledo and Bowling Green State University, the former some four miles away and the latter a little more than fifteen miles distant. Each of these has a present enrollment of about 13,000 students and each has a graduate school just now progressing from a masters degree level to a doctorate level in the physical, biological, behavioral and social sciences, which relate most closely to medicine.

These circumstances force a re-examination of the thesis that a medical college *must* be a part of a parent university. We have adopted the position that a close and broadly based relationship is necessary on the part of medical school and university but that administrative subjugation of one to the other is less essential and, at the present stage of development of the three schools, might be inhibitory. We are currently engaged in an effort to determine what it is that the growing medical school should do for these two, in many respects quite different, growing universities, and vice versa. By agreement among the three presidents, the graduate school activity has been selected as the initially most important joint consideration. The dean of the medical college and the deans of the two graduate schools are engaged in a series of conferences directed toward the coordination of graduate study opportunities and perhaps, ultimately, to a single graduate school. It is our belief now that attention to program first, rather than to consideration of administrative structure, will lead to a viable and satisfactory solution to the Medical College's problem of non-parentage.

As a new medical school in a community previously without one, we are faced with another category of problems qua opportunities. The need for academic medicine to descend from its "Ivory Tower" has been well documented and vociferously established of late — even at Harvard Medical School. For a new school, the problem is to avoid ascension. Here lies still another dilemma: how to fulfill the expectation of the community for leadership in a myriad of services without dilution of the fundamental and necessitous devotion to scholarship that must remain the overriding consideration in any medical college. In Toledo it was somewhat disconcerting to find a strong tendency for new programs to be held back and decisions deferred on the part of health agencies waiting for an expression of approval or disapproval from the medical school. Fortunately, the continued arrival of faculty with pertinent knowledge is making it possible for the Medical College to provide this looked-for leadership. The fortuitous emergence of the Regional Medical Program has provided a number of useful avenues for appropriate community involvement as, we expect, will the opportunity to participate in Comprehensive Health Planning. It is fortunate that the College is located in a reasonably well defined socio-economic service area comprising about 20 counties in the northwestern corner of Ohio, thus providing a manageable population laboratory.

To invite any medical educator to discourse upon the problems of his school is indeed dangerous and apt to produce a dreary recital of woe. Ye wise editor has, happily, imposed a reasonable limitation upon verbiage. Hence the reader may assume that our school has many more problems. It is a curious reflection, however, that in this dawn of the development of the Medical College of Ohio at Toledo, most problems appear to be the reverse of a coin whose obverse is a compelling opportunity. We are pledged to make the most of it, but as yet the crystal ball fails to reveal whether a worthy addition to the Harvard lineage is aborning.

Psychological Aspects of International Negotiations

by Jerome D. Frank '39

WAR has always been the ultimate means for settling international disputes, but many international quarrels have been settled by other methods, among which are bilateral negotiations between representatives of the contending parties. As war becomes increasingly unworkable, the new conditions of life must be exploited to make these and other methods of nonviolent resolution of conflict more effective, and to create new ones.

Bilateral negotiations, no matter how skillfully conducted, are merely one means to an end. In themselves they cannot insure a world of enduring peace, which requires a system of international institutions for adjudicating disputes and enforcing their judgments. Moreover, they represent only one type of negotiation. Other procedures such as mediation, arbitration and, above all, continuing international forums like the United Nations, which is playing an ever more significant role in resolving international conflicts, are excluded from consideration because bilateral negotiations have been the object of more empirical and experimental studies that highlight some of their psychological obstacles and how they might be overcome.

To avoid misunderstanding, let it be said at the onset that the main determinant of success or failure in negotiations is, of course, the nature of the issue itself. The more the negotiators desire an agreement on an issue and the greater the relative rewards for reaching one and the greater the penalties for failing, the more likely it is that an agreement will be reached. Furthermore, it is easier to reach agreements about matters that do not involve very high stakes and in which gains and losses are immediate and obvious. An agreement for scientific cooperation in the Antarctic, for example, was considerably easier to negotiate than would be one to halt the arms race. In the former, life and death were not at stake and the potential rewards for agreeing were clear and immediate. In the latter, the stakes are astronomically higher, and both the gains from a disarmament agreement and the penalties for not agreeing are unclear and hard to place in time.

Psychologists are interested in aspects of negotiations that operate more or less regardless of the substantive questions involved and that, therefore, can impede or facilitate negotiations about any issue. Often the influence of these features on the outcome is only marginal, but since they may influence the very definition of the issue to be negotiated and the participants' perceptions of the potential rewards and punishments for different outcomes, they may be more important than appears at first glance.

The outcome of negotiations is undoubtedly affected by the personal attributes of the negotiators, including their sensitivities, momentary emotional states, and conditions of health. One cannot help wondering, for example, what effects Franklin Roosevelt's failing health at Yalta had on the agreement reached there. The present state of the art, however, does not permit the development of a systematic body of knowledge about the effects of personalities of negotiators on the outcome of negotiations.

As to features of the negotiating process itself, a pervasive obstacle is sheer difficulty in communication arising from the differences in language, cultural background and habits of thought of the negotiators. These difficulties as they affect negotiations between Russians and Americans showed up clearly in a content analysis of transcripts of the

first 116 sessions of the eighteen nation disarmament conference performed by a psychiatrist, Bryant Wedge and his co-workers. (As Americans, it was naturally easier for them to detect Russian preconceptions than American ones).

Behind all the disagreements on specific issues or modes of procedure was a difference in the way Americans and Russians habitually tackle problems. The latter's approach is universalistic and deductive — they want to start with the general principle and deduce the specific case from it. Americans, on the other hand, are pragmatic and inductive. They prefer to take one step at a time and decide on the next step after they see how the last one has worked. Appeals to reason or principle work best with Russians; appeals to fact and concrete details carry most weight with Americans.

These traits are reflected even in the language used to characterize negotiating proposals. The Russians use the words "correct" and "incorrect;" the Americans "acceptable" and "unacceptable." The Russians look for the "right" solution; the Americans the "preferred" one.

For a long while American and Russian disarmament proposals reflected this difference in approach. The Americans proposed proceeding step by step, checking how well each had worked before moving on to the next. The Russians insisted that the Americans commit themselves to every step to total and complete disarmament before starting. Perhaps the Americans feared accepting the general principle in advance because they could not foresee all its consequences, and some of these might prove to give the Russians an advantage. The Russians, on the other hand, might have feared that unless the Americans committed themselves to the whole process, they might refuse to go on if any step turned out to give their opponents an edge.

That culturally determined differences in outlook also complicate the carrying-out of agreements reached through negotiations has been shown by Wedge's study of the vicissitudes of the Russian-American student exchange program. The Russians saw this as an agreement between governments that make decisions and speak for their citizens; the American government saw itself as the agency of the Inter-Universities Committee on Travel Grants, which represented individual students who wished to study in Russia. The Soviet ministry expected that the American universities would accept its nominees without question and that it would supervise the study programs of the American students. When the American committee requested more data to determine where the Russian students could best be placed, and finally rejected a few on the ground that they were insufficiently qualified, the Soviets took this both as a politically inspired capricious rejection of official judgments and a derogation of Soviet academic degrees.

On the other hand, Americans, raised in the tradition of free scholarship, were resentful when they found they were

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expected to accept programs given them by the Soviet educational authorities and that they would not be permitted to study certain subjects ideologically distasteful to the Russians. Fortunately, the exchange program has managed to limp along despite such misunderstandings, and perhaps the experience gained in circumventing them will make more far-reaching agreements easier to arrange when the time is appropriate.

Turning to the effects of structural properties of the negotiating situation that influence outcome regardless of the issues involved, the personal attributes of the negotiators, or cultural differences in the groups they represent, an illuminating series of experiments has been conducted by a psychologist, Robert R. Blake and his co-workers. Taking advantage of the setting of training laboratories in group development, in which persons live together for several days, they formed groups of adults who met together for the first three days in five or six sessions, each lasting two hours, to study, on themselves, the process of group formation. At the end of this time they had become real groups with a sense of identity, cohesiveness, and a rudimentary group structure. Each group was then given a type of problem familiar to them, such as one concerning the operation of a business firm or the handling of a deviant student in college, and told to prepare and type up a solution in three hours. In any one experiment, all groups received the same problem.

The solution of each group was then distributed to the other group or groups involved in the experiment. Each was asked to familiarize itself with the solutions of the others, either by studying them separately or listening to discussions among the captains elected by each group.

After the groups signified that each fully understood the other's solution, the captains met in the presence of their groups to try to agree on which solution was the better. The members of each group were permitted to communicate with their captains privately, but could not enter the discussion.

The confrontation of the group captains resembles international negotiations in that negotiators come to the table as representatives of groups that already have their own proposed solutions to the problem. It differs from international negotiations in many ways, among them that there are only two available solutions which the negotiators cannot modify, and a neutral individual or small panel makes the final decision if the negotiators cannot agree.

The central finding was that although the uncommitted judges easily picked the better solution every time, 60 of 62 negotiations ended in deadlock.

The reason for this unhappy outcome was, of course, the commitment of each group to its own solution. As a result, whenever a team captain showed signs of yielding, his fellow group members demanded that he stand firm. The two captains who did give in were severely criticized by their teammates. A negotiator who yields always runs the danger of being accused of betraying his group.

Another relevant finding was that, despite the conviction of the members of each competing group that they fully understood the proposal of their rivals, actually they did not. This was demonstrated by giving each participant, before the start of the negotiations but after they had indicated that they had fully understood their rival's proposal, a list of forty statements, ten contained in the proposals of both groups, ten not contained in either, and ten each in the proposal of a member's own group but not in that of the other. They were asked to classify these statements in their appropriate categories. Twenty out of twenty groups and 165 out of 195 group members identified correctly more items from their own group's position than from their competitor's. They identified items from both groups' proposals much more often as emanating from their group alone than as either absent from both or exclusively in the opponent's. Needless to say, groups who simply studied the proposals without a competitive "set" showed no such distortions.

Along with inability to hear what the adversary was saying or identify its source correctly when they heard it, went an overvaluation of the solution of one's own group. In one experiment of 48 possible comparisons, 46 groups throught their own solution to be superior, and the remaining two were tied.

If artificially composed groups dealing with hypothetical problems regularly developed this much distortion of memory and perception and rigidity of behavior when in conflict, it is a wonder that international negotiations over vital issues are ever successful.

DYNAMICS of international negotiations have also been illuminated by the study of so-called mixed-motive games. (The term "game" in this sense has nothing to do with amusement, but describes a type of interaction in which the moves of each participant are influenced by the moves of the other). In mixed-motive games, as contrasted to games like chess or poker in which all the interests of the players conflict, participants have some interests in common and some opposed, and the best outcome for both sides can be obtained only if each takes the other's interests into account as well as his own. If each considers his own interests only, both wind up with an outcome neither prefers.

Russian-American disarmament negotiations afford a good example. For both parties, an agreement that slowed or reversed the arms race would be preferable to no agreement at all. To this extent their interests coincide. But their interests also conflict in that each wants to achieve or maintain superiority in armaments. So each is torn between the desire to reach an agreement that gives him the advantage, and the fear that if he is too adamant no agreement at all will be reached.

This kind of bargaining situation has certain obvious implications for negotiations. First, the more disadvantageous the failure to reach agreement is to both sides, the more likely they are to arrive at an agreement. Thus industrial strikes seem to continue until both labor and management are hurting so badly that the disadvantages of a contract containing concessions to the adversary outweigh those of continuing the strike.

On the international scene, this state of affairs appears to have been reached in Vietnam, which has become so costly to all parties that each may be willing to relinquish some of the goals it had hoped to achieve by fighting in the interests of reaching a settlement.

Another implication of mixed-motive games is that the player who appears more anxious to reach an agreement is immediately at a disadvantage, because this suggests that he fears failure to reach agreement more than his adversary.

Much of the haggling over apparently irrelevant matters in international negotiations such as order of agenda or place of meeting seems to be motivated by the determination of each party to show that it is in no hurry to negotiate. Also, each fears that yielding on an apparently minor or irrelevant point will encourage the other to push for further concessions. Thus the United States and North Vietnam pointedly failed to include Paris as a possible site for negotiations in their initial lists so that they could eventually agree on it without either yielding to the other.

But the chief psychological obstacle to reaching a solution in mixed-motive games is the temptation it creates for both players to cheat on any agreement they may reach, a temptation that is greater the greater the mutual mistrust of the participants, and this is high between nations with a history of hostility. As the diplomatic historian Louis J. Halle (B.S. 1932, Graduate School 1937-1938) has said with respect to the United States and Russia: "For Moscow to propose what we can accept seems to us even more sinister and dangerous than for it to propose what we cannot accept. Our instinct is to cast about for grounds on which to discredit the proposal instead of seizing it and making the most of it. Being distrustful of the Greeks bearing gifts, we are afraid of being tricked." The Russians no doubt feel the same way about us.

Given this state of affairs, suppose that the U. S. and the U.S.S.R. finally reached an agreement for substantial mutual disarmament, which was to the advantage of both nations but which, like any agreement, would not be completely immune to cheating. The U. S. strategists then fearing that Russia would cheat, thereby giving it a dangerous advantage, would reason that to protect itself, the U. S. had better cheat too. If the Russians did not cheat, so their thinking might go, that would be all the better, because then the United States would gain an edge. The Russian leaders, being in exactly the same position, would reach the same conclusion, so both nations would cheat and both would be worse off than if they had kept the agreement.

The crucial psychological dilemma of mixed-motive games is that, while mutual trust yields the best outcome for both players, each player is tempted to try to double-cross the other. That is, the best strategy for each player would be to convince his opponent that he would cooperate and then defect. In the example, each nation would gain the most advantage if it could convince the other that it would not cheat (so that the other would not) and then cheat. Each contestant is torn between the contradictory goals of winning the other's trust and betraying it, and between his desire to trust the other and his fear of being betrayed.

Thus the success of negotiations depends not only on reaching a resolution of the issues acceptable to all concerned, but on methods of enforcement in which all sides have confidence. This does not present much of a problem within organized societies which have long established and tested institutions for enforcing agreements, but can be a huge obstacle to international negotiations since no analogous international institutions exist. So agreement to ban underground nuclear tests is still stymied by the inability of the nuclear powers to agree on methods of inspection and enforcement.

If this analysis is valid, disarmament negotiations will have some hope of success only when national leaders become willing to run risks to obtain disarmament agreements comparable to those they now run in pursuit of illusory security through armaments. For disarmament negotiations to succeed, the participants would have to be convinced that the risk of no agreement outweighed the risk of being cheated by the adversary. In the past both risks were familiar — the latter is as old as human perfidy and the former simply meant continuance of an old-style arms race that each side hoped to win. With the advent of modern weaponry, the first risk has changed drastically. An uncontrolled nuclear, chemical and biological arms race cannot be won and is something humanity has never experienced before. A major psychological obstacle to success in disarmament negotiations seems to be the under-estimation of this brand new danger in comparison with being cheated — a familiar, highly unpleasant, and dangerous experience. So even though the arms race presents an enormous risk in the long run, the risk that an adversary might gain a small temporary advantage by cheating on an agreement is psychologically far more potent, and so no agreement is reached.

IN short, empirical and experimental studies of negotiations confirm the obvious fact that, regardless of the issues, a successful outcome is impeded by the absence of mutual trust and lack of full and accurate communication between negotiators, and by certain structural properties of the negotiating situation. These studies also offer certain leads as to how negotiations could be improved.

It is reasonable to assume some potential basis for mutual trust in almost all international negotiations. In the Vietnam war, for example, both sides have shown restraint. We have not bombed the dikes of North Vietnam and they have not attacked our fleet with surface to surface missiles. Thus one important way of improving the chances for the successful outcome of negotiations, regardless of substantive issues, would be to pinpoint and combat sources of mutual mistrust. For example, participants in all negotiations could well make special efforts to bring into the open psychological sources of mutual misunderstanding. These include conflicting habits of thought and ways of proceeding and, above all, the universal difficulty in really hearing what the other fellow is saying. Adlai Stevenson's quip "I sometimes think that what America needs more than anything else is a hearing aid." applies to all countries. If it could only be enforced, a splendid ground rule for all negotiations would be that bargaining could not start until each party could express the position of the other to the latter's satisfaction. Unfortunately, as the experiments on understanding the adversary's position demonstrate, this is much harder to do than might appear at first glance. Merely striving for this goal, however, even if it is unattainable, would improve the atmosphere of all negotiations. As all

psychotherapists know, the best way to get someone's favorable attention is to listen to him, not talk to him. To feel that a person, especially one you believe to be hostile or indifferent, is trying his best to understand you creates a very favorable impression of his good sense, intelligence and good will. You are then in a much more receptive frame of mind for his ideas.

From the structural standpoint, the goal would be to set up conditions that foster a cooperative rather than a competitive stance in the negotiators. The aim would be to reduce the barriers between the groups by making each feel, at every step of the way, that they are working on a joint enterprise. For example, instead of negotiators being selected by each group separately, they could be chosen jointly from a panel of names put up by each. The negotiators would then consider themselves as representatives of both groups, who would have implicitly committed themselves in advance to accept the outcome of the bargaining. While this procedure is hardly feasible at the moment in international political negotiations, it could perhaps be used to improve cultural, economic and scientific ones.

Pursuing this same line, at every step of the way it might be possible to involve both groups in selecting problems to be discussed and devising alternative solutions, thereby taking advantage of the greater readiness of persons to accept innovations when they feel they have participated in planning for them. The crucial importance of this principle has become increasingly apparent in negotiations to develop programs for improving Negro-white relation, and there ought to be a way to apply it to international problems as well.

While procedural suggestions like these would increase the likelihood that negotiations over any particular issue would be successful, the most important single determinant of success remains the degree to which both sides believe that the other will adhere to any agreement reached, which brings us once again to the theme of mutual trust. The prospect for achieving this is brightened by two new conditions of modern life, one of which creates new opportunities to penalize the breaking of agrcements, the other new incentives to hold to them.

In a world full of nuclear weapons, it is probably impossible to enforce agreements by military sanctions, since a very small nation with a few nuclear weapons at its disposal could defy the world. The nuclear bomb plays the same role on the international scene as the pistol did in the wild West; it is the great equalizer. Modern electronic mass communications, however, including intercontinental satellites like Telestar and Early Bird, do seem to be creating a world public opinion which in time may eventually exert considerable constraints on national leaders. Perhaps it has already done so in Czechoslovakia, where the Russians are showing considerably more restraint than in Hungary about a decade ago.

On the positive side, modern science and technology have opened many new fields for international cooperation to achieve goals that no nation can achieve alone — that is, they can be reached only by nations working together. The incentive for adhering to such argeements is not thc fear of punishment for breaking them but the rewards for keeping them.

One such undertaking has been running smoothly for some years — the cooperative exploration of the earth's crust and the oceans instituted by the International Geophysical Year. The treaty demilitarizing the Antarctic, which safeguards this activity, has not caused a particle of trouble because it is self-enforcing. That is, it is to the interest of every nation not to violate it because the gains from respecting it outweigh any gains that might result from attempting to militarize their zone at the cost of destroying the agreement. Scientists have outlined literally dozens of similar international projects that would have enormous pay-offs.

Perhaps the most hopeful area for cooperative international research is outer space including the moon and planets. The pay-off in terms of gains in knowledge, and therefore inevitably in human welfare, would undoubtedly be enormous, and the resources required to do an adequate job are beyond the reach of even the richest nation. The area is new, so it is not yet cluttered up with vested interests. To be sure, gains in knowledge about outer space do have military implications, and this is the most serious obstacle to international cooperation. But so far at least, nations seem prepared to forego possible military advantages, as the unanimous United Nations resolution against the orbiting of weapons bears witness. And so far the potential military implications have not prevented the favorable reception by all countries of the space triumphs of Russia and the United States. The conquest of space is essentially an undertaking of all mankind. When Gagarin or Grissom is lost, the whole world mourns; and when either the United States or Russia achieves a new space triumph, people everywhere share the feeling of pride. Americans and Russians can sincerely congratulate each other on a new space feat, a response that would be unthinkable to an improved nuclear missile.

Although only a minute number of persons are involved in such activities, thanks to the human capacity for identification, all members of a group can participate vicariously in the acts of its representatives. Entire student bodies of colleges and large segments of the citizenry of cities become emotionally involved in the fortunes of their athletic teams, and the hero's receptions accorded to astronauts and cosmonauts indicate that the public at large shares the thrill of their achievements.

These considerations suggest that for cooperative international ventures to have the greatest beneficial effect on international attitudes, it would be important to dramatize the fact that the persons involved are participating as representatives of their nations, not as individuals.

Successful international projects that benefit all mankind would facilitate international negotiations in several ways. Through working together nations strengthen patterns of cooperation and generate mutual trust, which would gradually extcnd to other areas. The international agencies required to conduct these projects create precedents and procedures for international conflict resolution that could and would be applied to other fields. As beneficial results accumulate, they increase incentives for international cooperation in ever widening areas of mutual interest. In these ways international scientific projects could create the atmosphere and lay the necessary institutional groundwork for eventual adherence by all nations to international institutions for preserving peace.

Publish or . . .

by Paul J. Davis '63

THE right to publish, and hereditary impatience with publication delays, are contexts in which several new medical journals are to be launched this winter. One of these periodicals, *The Journal of Published Research,* has its "Instructions to Authors" reproduced here in the event that readers of the *Alumni Bulletin* have manuscripts in preparation that are appropriate for the *Journal.*

Instructions to Authors

The Journal of Published Research is devoted to the hasty disclosure of laboratory observations. Manuscripts likely to be accepted in the *Journal* are 1) typed on one side of the sheet only, double-spaced with wide margins, and 2) mailed postage-paid to the Editorial Office. Manuscripts are accepted for publication strictly in the order of their receipt. In general, the *Journal* encourages its authors to have some familiarity with the field in which observations were made, although established investigators need not abide by this rule. The *Journal* takes reasonable care to refer submitted manuscripts to impartial referees; frequently, these are scientists who are unfamiliar with the areas with which the manuscripts deal. Referees are encouraged to review manuscripts and usually the *Journal* is able to notify authors by return mail of acceptance of their manuscripts. Without Formal Notification from the Editorial Office, however, authors may receive Implied Acceptance when they see their manuscript in print in the *Journal.* In some cases confusion in the Editorial Office has resulted in the publication of rejected manuscripts, so that Implied Acceptance is not invariably synonymous with Formal Notification of Acceptance. Articles submitted in foreign languages will not be published in the *Journal,* but will be seriously considered for publication in *Comptes Fondus,* the formidable European counterpart of the *Journal.* It should be pointed out that the *Journal's* unique editorial attitude is complemented by the fact that the *Journal,* itself, is completely biodegradable, including the advertising.

Title Page

The *Journal* does not publish authors' degrees. Upon the request of the author the latter's institution will be omitted from the title page. In extreme cases, authors' names will be withheld.

Format

Authors in general find it convenient to submit manuscripts of one or several of the following types:

A. **Brief Communications; Long Communications; Final Communications.** Long communications develop at length a subject that is frequently of the authors' choosing and that otherwise might not be considered for publication. Final communications are restricted to manuscripts submitted by laboratories whose grants have not been funded or renewed.

B. **Direct Communications.** Direct Communications are submitted directly to the printer and bypass altogether the Editorial Office of the *Journal.* These communications should deal only with urgent material, including retractions of prior work, clinical trials of new tranquilizing drugs, effects of hormones on target organ weights. These manuscripts should be proof read prior to submission to the printer to eliminate simple errors in grammar which detract from overall high-class appearance of the *Journal.*

C. **Monthly Conference Transcripts.** Institutions are encouraged to submit transcripts of multidisciplinary discussions of topical subjects. Titles of manuscripts already accepted for the first issue of the Journal include "Topical Anesthesia," "Topical Antibiotics," "Foot Problems," "Chronic Disease," and "The Heart." Transcripts of informal discussions in corridors and foyers need not be submitted.

Organizations of Manuscripts

Headings of submitted manuscripts should be indistinguishable from those established by other journals. "Results," however, should generally be submitted on microfilm directly to the Library of Congress and are not subject to review by the Editorial Office. The wide-margin format of the *Journal* is meant to encourage the liberal use of footnotes. The submission of discussions and summaries as footnotes, however, is not always judicious. The *Journal* would like to limit bibliographic citations to "unpublished data" or "personal communication," as in

27. Fernly, P.R. Personal communication.

and

28. Pritchard-Grant, P.R. Unpublished data

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Illustrations

Illustrations should support the contention that much of the work reported was performed in the authors' laboratories within the framework of the Helsinki Declaration. Certain illustrations may be designated "Unnecessary" by the Editors; such illustrations are placed on microfilm, deleted from the manuscript and sent directly to the Library of Congress. It is expected that, where possible, microfilming costs will be borne by authors' grants. An exception is made in the case of illustrations from manuscripts submitted as *Final Communications.*

Abstracts

Whenever possible, an abstract should accompany a submitted manuscript, detailing in so many words: 1) the basic disease concepts, 2) how biochemistry was applied to the process, 3) the statistical significance of both populations and 4) a small Venn diagram explaining the relationship of the disease process to earlier basic concepts developed in the authors' own laboratories.

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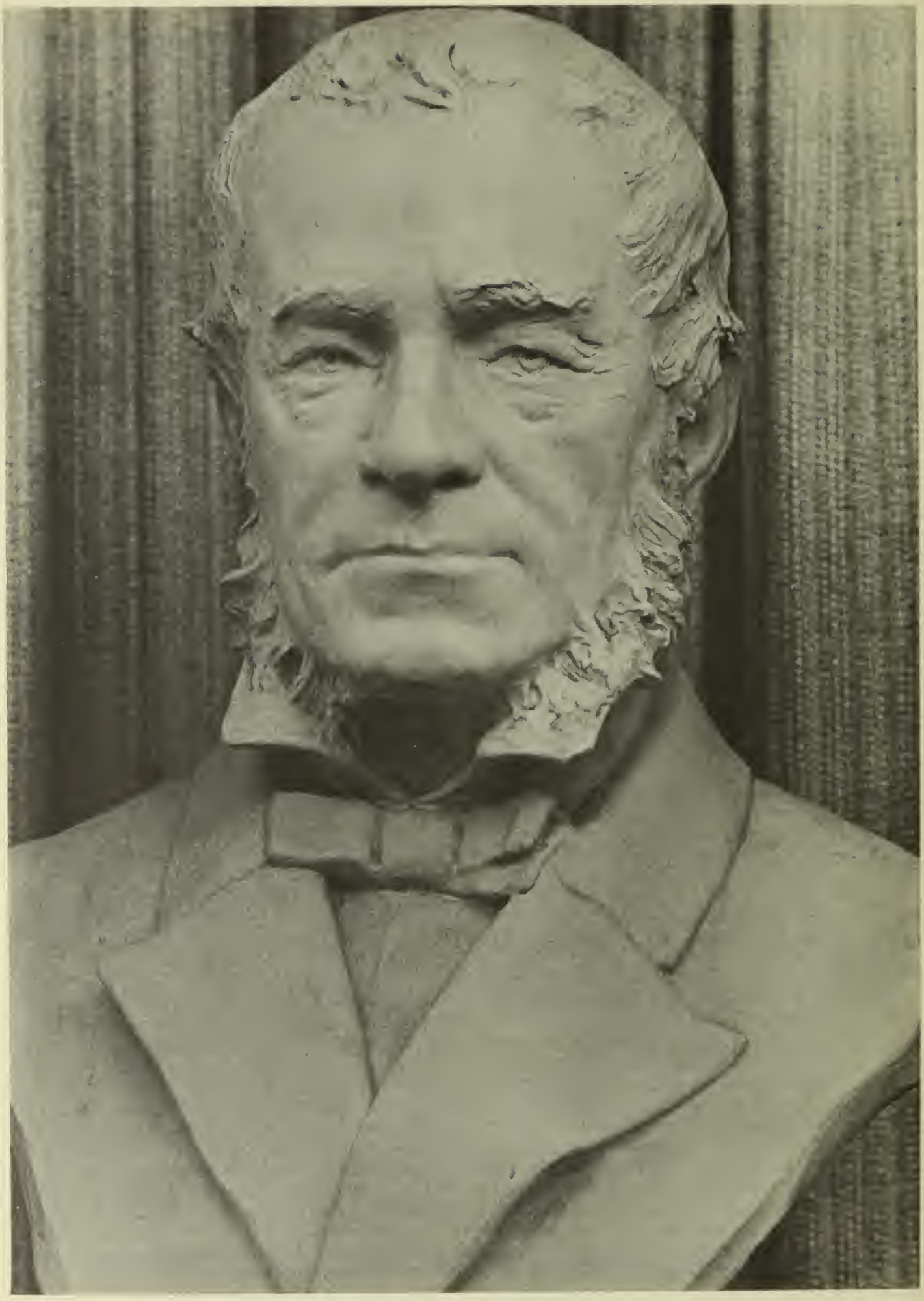


JOHN WARE and the BOOK OF NATURE

by George E. Gifford, M.A., M.D.

BEFORE he became the Hersey Professor of Medicine at Harvard, John White Ware (1795-1864) pulled teeth, wrote a novel, kept school, took private "scholars" into his home, wrote for magazines, gave popular lectures, edited medical publications and the first natural history textbook in the United States.

His father, the Reverend Henry Ware, found the $450 a year he received as a minister of a Hingham Church inadequate to support his family of 19 children, so he took in boarders and tutored boys for college. During his 18 year pastorate he became known for his learning, liberal inclinations, and intrepid character. In 1805 he was appointed Hollis Professor of Theology at Harvard; later he was professor of systematic theology at the newly organized Divinity School. His championship of the liberal point of view marked a new era in the history of New England Congregationalism, leading to the separation of its more liberal wing to form the Unitarian Church.

John Ware was one of thirteen sons. He was graduated from Harvard College in 1813 at age 18; three years later he obtained the Harvard M.D. degree and began the practice of medicine. He was poor and found it necessary to supplement his income. He wrote in his diary, "I had always a great many patients, but for many years a very small income, and was obliged to have recourse to other means besides my profession for the support of my family. Some of my receipts were from dentistry, which I practiced about 10 years." He also wrote to earn money. In 1817 he contributed a poem to the *North American Review,* in 1818 a story, and later, medical and scientific reviews. In 1820 he recorded in his journal "Boylston Premium, fifty dollars" for an essay on hemoptysis. An anonymous novel, *Charles Ashton* was next, and in 1824, with J. White Webster, Harvard's erratic chemist and Daniel I. Treadwell, he issued the short-lived *Boston Journal of Philosophy and the Arts* (1823-26). With Walter Channing he became editor and manager of the *New England Journal of Medicine and Surgery* and in 1828 they purchased the *Boston Medical Intelligencer* and formed the new *Boston Medical and Surgical Journal.*

Ware's most successful book was his edition of the *Philosophy of Natural History.* The teaching of natural history (largely zoology) in the United States during the first half of the 19th century was based on this textbook, written by William Smellie, a Scotsman who also was one of the founders of the Newtonian Society and a professor of natural history at Edinburgh. Students at that time referred to the natural history course simply as "Smellie." In 1824, the Ware edition of Smellie's book, "with various alterations and additions intended to adapt it to the present state of knowledge" was published. In the preface, Ware wrote, "At the suggestion of my friend, Mr. George B. Emerson, it underwent a variety of alterations, intended to adopt it for use in the school of which he was then the teacher." "The school" of which Emerson was principal was the English Classical School in Boston.

The Ware edition of Smellie became quite popular. Many scholars found the courses in botany and natural history a relief from the traditional work. The book went through 10 editions between 1824 and 1846. There was a 14-year lapse before the next edition, probably due to the publication of other more scientific texts. In 1848 *Principles of Zoology: Touching the Structure, Development, Distribution, and Natural Arrangement of the Races of Animals, Living and Extinct; with Numerous Illustrations, For the Use of School and Colleges* by Louis Agassiz and Augustus A. Gould was published. As early as 1836 Asa Gray had published his first botanical text entitled *Elements of Botany,* followed in 1839 by his *Botanical Text Book for Colleges, Schools, and Private Students.* In 1842 Gray accepted the Fisher Professorship of Natural History at Harvard; the first edition of his *Manual of the Botany of the Northern United States* was printed in 1847.

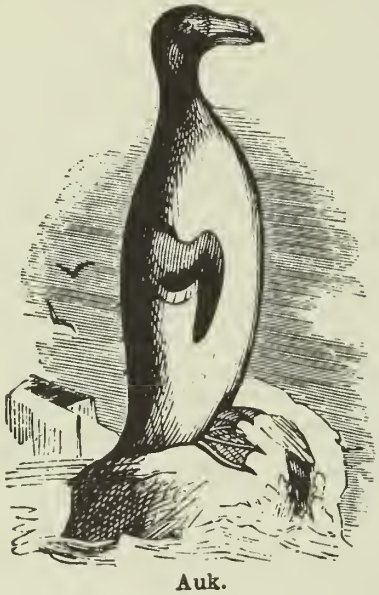
In 1860, and again in 1861, the Ware edition of *The Philosophy of Natural History, Prepared on the Plan, and Retaining Portions of the Work of William Smellie* was published.

Samples of his early 19th century, moralistic, anthropomorphic writing follow:

Dr. Gifford is instructor in psychiatry at HMS. He gratefully acknowledges the assistance of Gareth M. Green '57, great grandson of John Ware. Opposite page, bust of John Ware by Bela Lyon Pratt, Ware Room, Countway Library.

The three-toed sloth is an animal whose very aspect is painful and disgusting, from its excessive ugliness and deformity. The expression of its countenance and its whole attitude, indeed, convey to the beholder the impression, that its very existence is a burden. It is almost the size of a cat. Its fore legs are much larger than its hind ones, and it drags the latter after its body, as if weary of carrying them. It creeps, in fact, almost with its belly upon the ground, and does not advance more than fifty or sixty paces in a day. It climbs trees, and feeds upon their leaves and smaller branches; but such is its indolence, that, after having despoiled one tree of its foliage, it endures the pangs of hunger a long time, before it removes to another, and usually consumes a day or two in ascending or descending. Sometimes, indeed, it has been known to suffer itself to fall to the ground, rather than undergo the labor of coming down by the trunk.

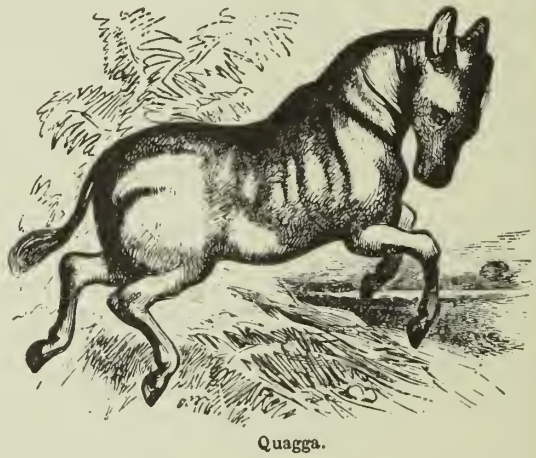
Sloth.



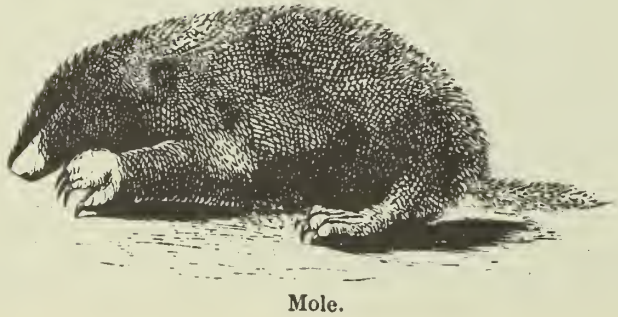
Auk.

In consequence of their peculiarities of structure, some of the birds of this order can maintain themselves on land only in a sort of erect posture, not like the gallinaceous birds on the toes, but by throwing themselves backwards and resting upon the whole of the shank. They can hardly move upon land at all, and do not even have the power of flight, their motions being almost exclusively confined to the water, where, however, they swim and dive with great perfection, their stumps of wings serving the purpose of oars. Such are the guillemots and auks.

Besides the horse, which is the most valuable and highly prized of all the domestic animals, this family embraces the ass, the zebra, the dziggetai, a species between the horse and the ass in size, of a light bay color, inhabiting the central deserts of Asia, and the quagga, an inhabitant of Africa, resembling in shape the horse, but in stripes of dark and white colors, the zebra.



Quagga.



Mole.

The moles are peculiarly adapted, by the structure of their nose and feet, for burrowing in the earth. This operation they perform with great faculty and rapidity. So expert are they, that if put upon the grass where the earth is soft, they force their way into it almost immediately; and even upon a hard gravelly road, they can cover themselves in the course of a few minutes. They feed principally upon the earth worm, and prefer the soil in which it is found in greatest abundance for their residence. They construct habitations of a peculiar form, to be hereafter described, in which they rear their young, and lead a social and domestic life.

Most likely the success of the Smellie book was related to John Ware's long interest in natural history. He had been associated with the leading physician-naturalists in Boston such as Drs. Jacob Bigelow, Walter Channing, D. H. Storer, and George Hayward. At the age of 18, Ware was present at the founding meeting of the New England Society for the Promotion of Natural History at the home of Jacob Bigelow. The next year that pioneer group reported that a museum had been founded and Dr. Ware was appointed to head the department of fishes. This group became the Linnean Society and in 1816 the notes read, "The close of the year shows no less activity — in December a valuable paper was read by Dr. John Ware." Later he gave a public lecture sponsored by the group. When the Linnean Society became the Boston Society of Natural History in 1830, John Ware was elected Second Vice President and from 1832-36 he was the First Vice President, apparently resigning when appointed to the Hersey Chair.

As a physician, John Ware came into his own in 1832 when he was selected by James Jackson, Hersey Professor of Physic at Harvard, to be his assistant. Four years later he was to succeed Jackson to the chair. His chief medical contribution was an essay, "Remarks on the History and Treatment of Delirium Tremens," (1831) the result of observing nearly 100 cases in 14 years. It was the first important work on the subject in America and ranks with Thomas Sutton's classic account of the syndrome published in 1813 in England. He also wrote, "Contributions to the History of Diagnosis of Croup" (1842) which offered a differential diagnosis of diphtheria. His last paper, "On Hemoptysis as a Symptom" (1860) was based on 386 cases observed over 40 years, pointing out the importance of this symptom in the early diagnosis of tuberculosis.

In 1847 he published *Discourses on Medical Education and on the Medical Profession* in which he urged high standards of medical education to oppose quacks. He also wrote *Hints to Young Men* (1850). In 1839 he was one of the founders of the Boston Society for Medical Improvement, and served as president of the Massachusetts Medical Society from 1848-1852.

The Ware family has been involved with Harvard University since the days of Henry, the Hollis Professor. Henry's son Henry (1794-1843) was pastor of the Second Church, Boston, and later Professor of Pulpit Eloquence and Pastoral Care at Harvard Divinity School. The younger Henry married the daughter of Benjamin Waterhouse, the first Hersey Professor of Physic, and had two notable sons; John Fothergill Waterhouse Ware (1818-1881) and William Robert Ware (1832-1915). J. F. W. Ware was a Unitarian minister and religious writer. His brother William was head of the first architectural school at Massachusetts Institute of Technology and designed Harvard's Memorial Hall. Two other sons of Henry the elder were William and John Eliot. William (1797-1852), another Unitarian minister was famous in his day for a novel, *Zenobia: or the Fall of Palmyra.* The memory of Dr. John Eliot Ware is perpetuated at Harvard by the famous Ware Collection of Glass Flowers in the Botanical Museum. These celebrated natural sized models of American plants, executed with great accuracy and beauty, were made in Germany by Leopold and Rudolph Blaschka. J. E. Ware also had an interest in birds. He gave Thomas M. Brewer in 1835 four cowbirds which he had shot in the marshes of Fresh Pond and a oversized nest of a house wren built "in the clothesline box of Professor Ware." One of the cowbirds attained the distinction of being painted in plate 424 of Audubon's *Birds of America.*

One of John Ware's daughters married Dr. Charles Montraville Green (1850-1928), distinguished Harvard professor of obstetrics and Dean of HMS from 1907-08. According to Dr. Farlow, historian of the Boston Medical Library, "In the upper floor, over Holmes Hall, is the room in which the dedication exercises were held. Thanks to the generous gift of five thousand dollars by Dr. and Mrs. Charles M. Green in 1901, it was furnished in oak with wooden beams overhead and was named John Ware Hall in memory of Dr. John Ware, the father of Mrs. Green." A John Ware Room has been perpetuated in the Countway Library of Medicine.

The son of C. M. Green, and grandson of John Ware, was Robert Montraville Green (1880-1947). "Bobby" Green was associate professor of anatomy and author of the text of the *Warren Handbook of Anatomy,* translator of the Odes of Horace, and Galen's Hygiene, and editor-in-chief of the *Boston Medical and Surgical Journal* (1915-1921), of which his grandfather was one of the three founders in 1828.

R. M. Green's son, Gareth Green, M.D., now associate professor of medicine at the University of Vermont, recently presented the Countway Rare Book Collection with John Ware memorabilia, including his natural history and medical lectures and a draft of a novel.

In the standard texts on the history of medicine, John Ware is listed with the other Americans who sorted out disease entities; in the history of biology, he is remembered as editor of one of the most widely used natural history texts in the first half of the 19th century. An excellent example of his approach to both nature and disease is stated in his 1856 farewell address to the Harvard Medical School graduating class:

> Man is the interpreter of Nature, and his books a commentary on her works. She furnishes the great text which he expounds. He may aid you in understanding her; but, as on the one hand you turn to commentary for help to comprehend the text — so, on the other, bring the commentary to the touchstone of the text, that you may be sure whether it be just and true.

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EDITORIALS

Underwriting Educational Opportunity

One of the important concerns of the Harvard Medical Alumni Association is its current fiscal program, now assuming a major role in underwriting student finances. The cost of medical education has risen out of proportion to most of the rising costs of living, with the improvements, some of them fantastic, that have been made in the techniques of caring for the sick, keeping the healthy well, prolonging life, sometimes to the point of desperation, and in general improving or at least altering the lot of man.

Good as it may have been for the souls of the students a few decades ago to earn their way by stoking Back Bay furnaces and operating hospital switchboards oft in the stilly night, the remuneration for such services could scarcely cover the costs of the education process today, nor allow enough time to meet its demands.

A great increase in scholarships and revolving loans consequently has taken place, as the most practical way of supplying the aid that so many students now need, sometimes to augment the not unpleasant recourse of marrying a smart girl with a good job. This increase is necessary to back up the still honored pledge of a former dean that no student should be deprived of the benefit of a Harvard Medical education because of lack of funds. The School, even as it has raised the tuition, has found ways for the student to meet it. That which is taketh away with the one hand it giveth back with the other.

It has nevertheless been suggested that developing the facilities for educating a greater number of qualified students as well as making it possible to enroll a reasonable number of the disadvantaged is more of a problem than financing them.

With bare tuition now at $2,500, the average total cost of survival to the student who insists on having food with his meals is approximately $4,800 per year; 60 percent of them now need financial aid, either as a scholarship, a loan or both. These high costs, according to informed sources, have necessitated raising the scholarship budget to $488,000. Despite the impressive total of $2,940,774 that has been contributed by the alumni since the Program was established 17 years ago, the average gift to the Fund has gone up from $51 only to $55.

This contribution by the Alumni Program, which reached $263,956.59 in 1967-68, is essential to help fill the gap between the needed scholarship budget — $488,000 — and the income derived from the special funds that have been quietly accumulating over the years from gifts and bequests. These now consist of some two dozen restricted and 59 unrestricted funds that together are producing, during the current academic year, an income of $186,958.75. Loans are also available from funds that have been bequeathed or given to the School from various sources and from those allocated to it under the Health Professions Educational Assistance Act. The Rosalind W. Levine Loan Fund, established in 1967 by a gift from the estate of Samuel A. Levine is unique in that it is "preferably for women students." All of these funds were utilized in 1967-68 to a total of $143,824.65.

Also unique among the loan funds more generally available is the Franklin Foundation Fund established by a £1000 bequest to the town of Boston on Benjamin Franklin's death in 1790. This sum was to be used as an accumulating loan fund for 200 years (or until 1991) to assist young married artificers of Boston to set up in business. "It having become impossible to make the loans as prescribed, the fund was long invested in securities and had grown to approximately $1,750,000 when, on March 20, 1962, the Supreme Court of Massachusetts authorized the making of loans to medical students and hospital house officers."

In 1960 the Medical Student and Resident Assistance Foundation was established by a gift of $100,000 from Dr. Louis E. Wolfson to guarantee loans made to medical students and house officers. Although completely independent of the Franklin Foundation the operations of the Assistance Foundation are complementary to it. During the past year they have been utilized more by house officers and residents than by medical students - in 1968 $131,500 went to resident hospital staffs as against $59,600 to the three Boston schools, of which only $1,100 was borrowed by a Harvard student.

Like the miraculous pitcher of Philemon and Baucis, the contents of which were always replaced in some mysterious manner, these sources of educational pabulum seem also never to run dry. However, as the School increases its enrollment and costs continue to rise, more funds will be needed, which may include, it is hoped, the intriguing Educational Opportunity Bank, described elsewhere in this issue by Professor Shell, the establishment of which depends, apparently, on a mere act of Congress.

Nirvana

The procurement of anatomical material for dissection, study and contemplation has been one of the problems confronting scientific investigation and medical education since Galen naively substituted the carcasses of apes and pigs for the human cadaver. In the Middle Ages the bodies of executed criminals became legally available (one every three years or so) but the resurrectionists were the most effective procurers of such material until relatively modern times when legal channels were opened for the use of unclaimed bodies from charity hospitals.

In recent years the supply has again been reduced by the relative affluence that is said to prevail. Paupers are no longer permitted in such highly advanced cultures as our own — a social and economic triumph — and

a decent funeral can be arranged at reasonable cost to anyone for whom a friend can be discovered or drafted.

The willing of a body by the decedent has previously required in Massachusetts the willingness also of the next of kin, an obstacle removed in 1967 by "An Act Facilitating Anatomical Gifts." This law is of increasing importance, in view of the steady improvement in surgical techniques, in facilitating the donation of tissues and organs for transplantation.

By 1956 the shortage of anatomical material had become so acute that the three Massachusetts schools combined in their efforts to procure it by appointing Dr. Benjamin Spector, former professor of anatomy at Tufts Medical School, as Coordinator of Anatomical Material, with an office at HMS. His twelfth annual report, covering the period from October 1967 to October 1968 has recently been published.

Included is a five-year table indicating the source of material and demonstrating the shift from 116 unclaimed bodies received from state institutions in 1963-64, in contrast to 61 bequeathed, to 55 unclaimed in 1967-68 as against 108 donated in the same period. The total, regrettably, shows an irregular decline from 177 in 1963-64 to 163 in the latest academic year. The lowest total number, however, was 162 in 1964-65, and the highest, 188 in 1965-66, so no important conclusions can be drawn except that the number of unclaimed bodies is steadily declining and the number donated is rising proportionately but without reaching the required number for all schools.

The relative annual needs of the three schools were recently established at 40 for Boston University School of Medicine and 85 each for Harvard and Tufts. Of the 163 procured, BU received 24, Harvard 88 and Tufts 51, the discrepancies being due to 77 having been donated to Harvard and 11 drawn from institutions, 22 donated to Tufts and 29 derived from institutions, whereas 9 were donated to BU and 15 received from institutions.

In addition to the embalming of bodies at state institutions at the expense of the medical schools that are to receive them, a crematorium will be installed at the new medical school of the University of Massachusetts to be available to all the schools for the disposal of the remains when such a preference has been expressed by the decedent or his family. Furthermore, Pine Hill Cemetery, maintained in Tewksbury by the schools, has been landscaped and otherwise improved and beautified by the Department of Buildings and Grounds of the Harvard Medical Area as a mark of respect to those who, in lieu of other arrangements, have there been laid to rest after their unique service to mankind.

Honor The Physician

The recent achievements of the Medical School in procuring professorial chairs received a special boost at the time of the Boston City Hospital Centennial in 1964, when four such endowments associated with the Hospital were proposed. These, in alphabetical order, consist of a William Bosworth Castle Professorship of Medicine; a David William and David Cheever Professorship of Surgery; a Maxwell Finland Professorship of Clinical Pharmacology, and a Frank Burr Mallory Professorship of Pathology. They have now been fully funded through gifts from Harvard Medical School alumni, alumni of Harvard-affiliated services of the Hospital, and other friends. The sum required for fully funding a named professorship is at present $600,000.

Another named Harvard professorship at B.C.H. for which more than half of the necessary endowment is already in hand, has its special appeal. This has been planned for a chair of gynecology and obstetrics to honor the memory and acknowledge the great contributions made by a father and son to Harvard and Boston City Hospital medicine.

Charles Montraville Green, still well remembered by an older generation of alumni, was born in 1850 and died in 1928. A graduate of Harvard College in 1874 and of the Medical School three years later, he served at the Boston Dispensary, the Free Hospital for Women and the Boston Lying-in Hospital, where he became physician-in-chief in 1907. In 1884, the year in which he joined the Lying-in staff, he was also appointed to the City Hospital staff, becoming in 1900 senior visiting physician for the diseases of women. He was appointed professor of obstetrics at the Medical School in 1907. Dr. Green was the son-in-law of Dr. John Ware, for a number of years Hersey Professor of the Theory and Practice of Physic, a member of the editorial board of the *New England Journal of Medicine and Surgery* and a founding editor of the *Boston Medical and Surgical Journal* in 1828.

Especially revered by successive generations of Harvard Medical School students was Robert (Bobby) Montraville Green, born in 1880, a graduate in 1902 of Harvard College, *summa cum laude* in English and the Classics, and of the Medical School *cum laude* in 1906. Like his father a practitioner of obstetrics, he is best remembered by a host of alumni for his brilliant lectures and demonstrations as associate professor of applied anatomy. He is less well known, although equally brilliant, as a classicist, essayist and poet; as a translator, with Dr. Fred Lund, of the Odes of Horace; as editor-in-chief of the *Boston Medical and Surgical Journal*; as a student of Greek and for the special association to which he devoted his spare time for over 50 years — his five volume epic poem *The Round Table, An Arthurian Romance Epic* of which only the first volume came to publication shortly after his death in 1955.

As his biographer in the New England Journal of Medicine wrote in 1957 "The words of Oliver Wendell Holmes, describing Dr. John Ware, are equally applicable to his distinguished grandson:

The love that lingers o'er his name
Is more than fame.

As stated above the endowment of this chair is more than half funded, but the Corporation has set a three-year limit on its completion.

Many of the alumni who still remember Charles Montraville Green as well as that greater number who fell under the spell of his gifted son will wish to see this professorship securely established. To aid in achieving such a goal checks made out to Harvard University may be sent to the University treasurer for this stated purpose, or to Maxwell Finland '26 at the Boston City Hospital.

ALONG THE PERIMETER

Meeting of the Council

The Council of the Harvard Medical Alumni Association held its annual fall meeting on Friday and Saturday, November 1 and 2, 1968, with Oliver Cope '28 presiding.

The business meeting took place at the Harvard Club at 4:00 p.m. on Friday, on which occasion the Secretary's report of the May meeting was presented and accepted, committees to nominate officers and councilors were named, and the editor reported on the generally satisfactory health of the *Bulletin*. He commented on the relative dearth of class notes and personal items, which constitute the life line of any alumni publication, and deplored the resignation of associate editor Patricia A. Moore, Patsy having transferred her talents, if not her entire loyalty, to the *Bulletin* of the Law School. Her place has been taken by her late assistant and understudy, Joan F. Rafter, who appears to have these duties well in hand. She has acquired as an assistant editor Hazel Inglis, informally yclept Scottie, recently graduated from the University of Massachusetts, where she seems to have been especially trained for her current duties.

The treasurer's report was accepted as read.

Dr. Parsons, for the Alumni Fund, reported that on the average 65 percent of the alumni are contributing to the annual giving program; the donations of 4021 members in the 1967-68 campaign amounted to $254,473.83, which was raised to a total of $263,956.59 by gifts from various other friends.

Further discussion, wholly amicable, considered such subjects as the Alumni Day Program for 1969, the twentieth anniversary, in 1969, of Harvard's first women graduates in medicine, the $1800 cocktail hour at the A.M.A. meeting in California last June, and the principle of deferred giving.

Dr. Ebert was guest speaker at the dinner that evening, the wives having meanwhile joined the company. The Dean, with his usual mature judgment, addressed himself to the necessity of opening the doors of the Medical and Dental schools still more widely to "disadvantaged" students. The evasive euphemism refers in the present instance to black students, for whom the faculty has agreed to establish at least 15 scholarships in each class, although the Dean pointed out that color is not alone a criterion of disadvantaged and warned against a policy of establishing quotas for any particular group, too many of whom might end up in the bottom of the class or even fail to qualify at all. It is a matter in which deliberation is more important than haste, despite a student body petition to the Committee on Admission posing nine more or less difficult questions relative to the admission of disadvantaged students, and strongly suggesting that an answer within two weeks would be appreciated. The thoughts of youth, according to Longfellow, are long, and the motives that inspire them are often wholesome, but they sometimes seem to demand a quicker response than is always wise or practical to give. Whereas the urgency of the matter is recognized, a warning against undue haste was sounded. The majority of those present joined in the discussion.

On Saturday, November 2, breakfast was served at 8:00 a.m. in the Countway Library, followed by a seminar on the Educational Opportunity Bank conducted by professors Jerrold R. Zacharias of M.I.T., chairman of the Panel on Educational Innovation of the President's Science Advisory Committee, and Karl Shell, now of the University of Pennsylvania, both authorities on the subject. The Ed Op Bank is proposed as an agency of the federal government, to be established by an act of Congress. It would borrow money at going Government rates and lend it to postsecondary students, regardless of their resources. The borrower would pledge a modest percentage of his income for a fixed number of years after graduation, to be collected with his income tax. The plan appears to be particularly adapted to medical education, and was unanimously endorsed by the Council. A detailed analysis is provided in the article by Professor Shell published on page 2.

In line with immemorial custom, the Council, rejoined by its helpmates, removed to Cambridge for lunch and the Harvard-Pennsylvania football game.

Organ Transplant Bank

Articles of incorporation for the Interhospital Organ Bank, Inc. have been filed with the Secretary of State of the Commonwealth of Massachusetts.

The Interhospital Organ Bank is a non-profit organization formed to "promote the procurement, preservation and distribution of tissues and organs for transplantation." The Bank will serve as a regional clearing house for the sharing of information concerning the availability of organs and patients awaiting organ transplants. It will also serve as a recipient of instructions for members of a family in which a member is suffering from an incapacitating and fatal illness and which authorizes a donation which will help another patient to return to good health.

Potential organ donors residing in Massachusetts may write to the Interhospital Organ Bank, Inc., at Post Office Box 306, Boston, Mass., 02114, for an appropriate donation form. When the signed form has been returned to the Bank the potential donor will receive a small wallet-sized card which identifies the carrier as a potential organ donor. The card instructs that should the carrier be incapacitated in an emergency, in the event of death he wishes to be considered as a donor of organs for transplantation. The permission is a general one and does not limit the donation of organs to any anatomical area.

Interhospital Organ Bank Committee Chairman is Dr. Paul S. Russell, John Homans Professor of Surgery at HMS.

Health Care Pilot Program

The nation's first university-sponsored prepaid medical care program offering comprehensive health services to a metropolitan area was inaugurated by a group of officers and faculty of Harvard University on Thursday, Nov. 7, 1968.

Operating independently of Harvard University, the Harvard Community Health Plan (HCHP) will enlist the resources of Harvard Medical School, some of its teaching hospitals, Massachusetts Blue Cross, and major health insurance companies to offer total health care to a cross-section of greater Boston families.

Although the HCHP will serve the medical care needs of thousands of Boston families, its purpose is larger in scope. According to Dr. Robert H. Ebert, Dean of HMS, the Plan is addressed to the national problem of making medical care better organized and more accessible. It is hoped that insurance companies will use the HCHP as a model for molding national health programs. In addition, the Plan should serve to broaden the base of medical education.

Unlike most conventional health schemes, the Harvard Plan offers total medical care with emphasis placed on prevention and the early detection of disease. The HCHP will allow unlimited doctor home and office visits. The total cost of all hospital bills and physicians' and surgeons' services will be met by the Plan. HCHP will pay the cost of up to 365 days of hospitalization for any single illness and up to 100 days of treatment in an extended care facility. The hospitalized patient will have to pay only for such personal items as telephone calls and television rentals. All subscribers will be entitled to 24 hour emergency care and out-of-area coverage.

The comprehensive HCHP will provide eye care, psychiatric care and obstetrics and maternity care. In keeping with its prevention policy, the Harvard Plan will conduct an immunization program and will make annual physical examinations compulsory. A health education program will also be included in the Plan.

The HCHP offers a wider range of benefits than Blue Cross and most other insurance plans. The Plan is family oriented and involves continuity in care.

Participation in the HCHP will be completely voluntary and limited to 30,000 people. To be eligible the subscribers must live within 10 miles or 20 minutes of the Peter Bent Brigham Hospital. Eligible persons will be offered the HCHP at their place of employment. Those people who choose the Plan will pay their premiums through the existing health insurance company. It is hoped that employers will share the cost of the Harvard Plan in the same way as they support other health plans.

Approximately 6,000 places in the HCHP will be reserved for low-income subscribers. These places are expected to be filled by Mission Hill-Parker Hill families. Several sources of financial support for these families are now being investigated.

1. Medicaid will probably pay for most or all of the Plan costs for those who are eligible.
2. Medicare parts A and B will meet a considerable portion of the costs for persons 65 years old and over.
3. Blue Cross and other health insurance coverage may be applicable to the costs of Plan membership.
4. Families will pay some portion of the charges themselves depending on their financial resources.
5. Government grant funds may be available to help fill any gaps.

The HCHP's monthly premiums will be higher than those of most conventional health insurance programs. However, total medical care costs will be lower than the total medical bills paid by the average family. The HCHP will include many essential services that conventional health plans do not cover. Monthly premiums will remain the same regardless of the amount of treatment given. Although a definite rate is yet to be fixed, the HCHP will probably cost $50 per month. The finally determined premium rate will remain fixed for two-and-a-half years.

Services are scheduled to begin in the Fall of 1969. Plans are underway for a new ambulatory health center to be built west of Brigham Circle. The new center will include lab and x-ray units as well as offices for doctors and other health personnel. Hospital care will be available at the HMS affiliated hospitals.

Medical services will be provided by groups of physicians who will be members of the HMS faculty. These physicians will also be on the staffs of Harvard affiliated hospitals. Each Plan subscriber will choose his personal physician from within the group. When hospitalized, the patient will remain under the care of his own physician. Personal physicians will be assisted by other specialists in the group as necessity demands. A group of "care coordinators" will be trained to help members arrange for Plan services and make sure their needs are met.

Representatives of Harvard University, its affiliated hospitals, the general public and consumer groups are being brought together in the Plan's policy-making Board of Directors. In the incorporation proceedings, Robert H. Ebert, M.D., Dean of HMS, was elected president; Arthur E. Sutherland, Bussey Professor of Law at Harvard, secretary and treasurer; and Professor Jerome Pollack, Associate Dean for Medical Care Planning at HMS, executive director.

Ten others were elected to the Board of Directors.

Lilly Award

Dr. Robert G. Spiro received the 1968 Lilly Award of the American Diabetes Association for his contributions on the chemical structure of the basement membranes of capillaries, especially in the glomeruli, in diabetic animals and man.

Dr. Spiro, Harvard's assistant professor of biological chemistry at Peter Bent Brigham Hospital and associate director of the Elliott P. Joslin Research Laboratory, accepted the award at the 28th annual meeting of the American Diabetes Association. At the meeting's scientific sessions, Dr. Spiro presented a paper, "The Carbohydrate of the Glomerular Basement Membrane: Structure and Enzymatic Assembly."

The Award, made possible by Eli Lilly and Company, consists of $1,000, a medal, and traveling expenses.

Dr. Spiro received the A. B. degree from Columbia College in 1947 and the M.D. degree from the State University of New York College of Medicine at Syracuse in 1955.

Physiology

John R. Pappenheimer, Ph.D. has been appointed George Higginson Professor of Physiology at HMS. For the past 15 years he has been visiting professor in conjunction with his appointment as Career Investigator of the American Heart Association. He will continue in the latter post.

Dr. Pappenheimer enjoys world acclaim for the brilliance of his investigative work in mammalian physiology. His research has dealt with the elucidation of the capillary circulation and permeability, kidney hemodynamics, perfusion of the cerebral ventricular system, and the functional significance of specific composition of cerebrospinal fluid.

He is currently involved in an exciting exploration of the mechanism of sleep. Cerebrospinal fluid drawn from sleep-deprived goats, when injected into other animals, depresses the nocturnal activity of rats and causes them to fall into a profound sleep.

Dr. Pappenheimer received the Ph.D. degree from Cambridge University in 1940. He is a former president of the American Physiological Society (1964-65), a member of the National Academy of Sciences, and Program Director of the 24th International Congress of Physiological Sciences.

Dr. Pappenheimer

Neurology

Norman Geschwind '51 has been named the James Jackson Putnam Professor of Neurology and head of Harvard's department of neurology at Boston City Hospital.

A recognized leader in research of the neurological bases of language disturbances, Dr. Geschwind's contributions in the area of cerebral speech mechanisms have had an important impact on neurological and psychological thought in the U.S. and abroad. His clinical studies of aphasia are well known. Other contributions include the first description of the patient with seizures induced by his own speech; the first published description of dementia and its pathological basis in hereditary radicular sensory neuropathy; and a demonstration that there are gross anatomical asymmetries in the human brain that favor the left side in the classical temporal speech region. He has also advanced a theory of the evolution of language, relating it to evolutionary changes in the pattern of cortico-cortical connections in the primate.

Prior to his appointment at HMS, he was director of the Boston University Aphasia Research Center and professor and chairman of the department of neurology at Boston University School of Medicine. He is the chairman of the Section of Neurology and Psychiatry, Massachusetts Medical Society; president of the Boston Society of Psychiatry and Neurology; and vice-president of the American Association of University Professors of Neurology.

Radiology

Dr. Harry Z. Mellins has been appointed professor of radiology and director of the division of diagnostic radiology at Peter Bent Brigham Hospital. Dr. Mellins comes to HMS from State University of New York College of Medicine where he was professor and chairman of the department of radiology. He was also radiologist-in-chief at Kings County Hospital Center and at State University Hospital.

Dr. Mellins' major clinical areas of interest have been in the genitourinary and gastrointestinal tracts. In recent years his research has been related to bladder physiology, and he is now involved in a series of longitudinal studies of the natural history of uretero-vesical reflux and urinary tract infection.

As director of diagnostic radiology at PBBH, he will supervise the residency training program, act as the coordinator of the academic training program, and coordinate undergraduate medical school teaching.

Dr. Mellins received the M.D. degree from Long Island College of Medicine in 1944 and the M.S. in Radiology from the University of Minnesota in 1951. He is president of the Association of University Radiologists. He currently serves as a member of the Radiation Study Section, National Institutes of Health, and National Consultant in Radiology to the Surgeon General of the Air Force. He is a diplomate of the American Board of Radiology and a fellow of the American College of Radiology.

Professor of Medicine

K. Frank Austen '54 has been named professor of medicine at HMS. Since 1966 he has been associate professor of medicine.

Identified with substantial accomplishments in the field of experimental immunology, Dr. Austen's work is almost entirely concerned with experimental anaphylaxis and the relationship between complement and disease. His investigations have delved deeply into the biochemical mediation of the immediate type of immunologic tissue injury — reactions involving the interaction of antigen, antibody, cells and complement with release of active substances such as histamine, serotonin and the slow-reacting substance of anaphylaxis.

In 1966 he was named physician-in-chief at the Robert Breck Brigham Hospital. Since that time he has built up an outstanding teaching and research unit in clinical immunology. New laboratories have been built and a vigorous research group assembled.

Dr. Austen is a fellow of the American College of Physicians and the American Academy of Allergy. He is a member of the AMA's Committee on Drug Reactions, and the Scientific and Educational Council of the Allergy Foundation of America.

Visiting Professor

Dr. Otto M. Marx, associate professor of psychiatry at Boston University School of Medicine, will serve as visiting professor of the history of medicine at HMS from Jan. 1 through June 30, 1969.

Dr. Marx will offer a course in the history of psychiatry, open to Harvard Medical Area students and students enrolled in the College of Arts and Sciences in Cambridge. The course will review the growth of psychiatric thought from antiquity to the late 18th century. The evolvement of psychiatry as a medical specialty from the end of the 18th century to modern times will be dealt with in greater detail. Emphasis will be placed on the development of medical psychology and models of body-mind relationship.

During 1966-67, Dr. Marx was a National Institute of Mental Health fellow in the Institute of History of Medicine, Johns Hopkins University. From 1964 to 1966 he was a special research fellow in the history of psychiatry at the University of Zurich under a grant from the NIMH.

A native of Germany, Dr. Marx received the A.B. degree from the University of California at Berkeley in 1953 and the M.D. degree from the University of California at San Francisco in 1957.

More Assistance for the Dean

Robert Morgan, former director of the Cambridge City Hospital, has been appointed assistant to Dean Robert H. Ebert.

Mr. Morgan is staff director of the HMS Commission on Relations with the Black Community. He also serves on the administrative staff working directly with Dr. Sidney S. Lee, associate dean for hospital programs at HMS and clinical professor of hospital and medical care administration at HSPH.

From 1962 to 1963, Mr. Morgan was assistant director of the division of clinical services at Beth Israel Hospital. He served as assistant administrator of the division of nursing homes and related facilities, Massachusetts Department of Public Health, Lemuel Shattuck Hospital from 1963 to 1965.

Mr. Morgan received the A. B. degree from Boston University in 1958 and the M.P.H. degree in 1965 from Columbia University School of Public Health and Administrative Medicine. In 1960, he was awarded a Certificate from the American College of Hospital Administrators Basic Institute in Chicago.

Mr. Morgan has membership in the American Public Health Association, American Hospital Association, American College of Hospital Administrators.

Dual Appointment

Todd M. Frazier has been appointed assistant director of the Center for Community Health and Medical Care at HMS and associate professor of biostatistics at HSPH.

Professor Frazier is former associate director for Planning and Research, Washington, D.C., Department of Public Health. From 1963 to 1965 he was chief of the Planning, Research, and Statistics Division, Washington, D.C., Department of Public Health and from 1953 to 1963 he served as director of the Bureau of Biostatistics in the Baltimore City Health Department.

Prior to coming to Harvard, Professor Frazier was also instructor in the department of obstetrics and gynecology, Johns Hopkins University School of Medicine; lecturer, department of preventive medicine, University of Maryland School of Medicine; and clinical instructor in obstetrics and gynecology, Georgetown University School of Medicine.

Professor Frazier is a member of Sigma Xi and a fellow of the American Public Health Association. He served as a consultant to the Surgeon General's Advisory Committee on Smoking and Health, and to the American College of Oral Surgeons. He is now a member of the Surgeon General's Committee on Records and Statistics.

Professor Frazier received the A.B. degree from Kenyon College in 1949 and the Sc.M. degree from Johns Hopkins School of Hygiene and Public Health in 1957.

Countway Librarian

Harold Bloomquist has been appointed librarian of Harvard's Francis A. Countway Library of Medicine.

Mr. Bloomquist, who has been acting librarian of the Countway Library since Sept., 1968, succeeds Ralph T. Esterquest who died on Aug. 10, 1968.

The Countway Library, which opened in June, 1965, was built as a prototype for university medical libraries in the United States. With a collection of more than 500,000 books and periodicals, the Countway, among medical libraries, is second in size only to the National Library of Medicine in Bethesda, Md. The Countway, which serves the New England states, became the nation's first regional medical library in Oct., 1967. The Library also serves as a MEDLARS (National Library of Medicine Medical Literature Analysis and Retrieval System) SEARCH STATION for the New England area.

Mr. Bloomquist has been at Harvard through the years of modern medical library development, including the planning for the Countway Library and the merger of the Boston Medical Library and the Harvard Medical Library. In 1958, he joined the Harvard Medical Library staff as assistant librarian for resources and acquisitions. He became associate librarian of the Countway in 1965.

In 1964-65, Mr. Bloomquist served as chairman of the Committee on Continuing Education of the Medical Library Association. He is a member of the American Library Association; Special Libraries Association; Society of Technical Writers and Editors, American Association of Dental Editors; Council on Research in Bibliography, Inc., where he is a member of the board of directors; Scientific Advisory Committee on the Pan American Health Organization Regional Library of Medicine, Sao Paulo, Brazil; Committee on Selection of Literature for MEDLARS.

Mr. Bloomquist received the A. B. degree from Albion College in 1950 and the M. S. degree from the Columbia University School of Library Service in 1954.

Voluntary Hospital System Slipping?

The American voluntary hospital system is becoming a victim of technology and medical specialization. Changes in technology and in the complexity of medical "hardware"; the competition to obtain highly skilled technical personnel; the rise of the single purpose service (as open heart surgery), have made it impractical to continue in operation some two-thirds of the nation's voluntary hospitals.

Ray E. Brown, professor of administration at HMS and executive vice-president of the Affiliated Hospital Center in Boston, presented his evaluation of the American voluntary hospital system in Nov. at the annual meeting of the Council of Teaching Hospitals-Association of American Colleges in Houston, Texas.

Voluntary hospitals cannot provide the range of medical services and the continuity of care that is available at urban hospitals. Professor Brown attributes these inadequacies to the fact that half of the voluntary hospitals have less than 100 beds. The outcome of an imposed insularity on the medical staffs of small hospitals is a lack of association with each other in the professional sense. According to Professor Brown, the medical staffs " . . . lose the synergism that accrues when members of various medical specialty groups associate to exchange medical information."

Small voluntary hospitals often have difficulty in making the best use of their existing treatment facilities. This means that they are reluctant to make investments for equipment with which to carry out complex medical procedures such as open heart surgery. Professor Brown referred to a recent survey published by Dr. Helen Taussig of the Johns Hopkins University Medical School in which she reported that hospitals equipped to perform open heart surgery, but which did five or less per year, lost all such patients. In hospitals doing 100 or more open heart operations in a year, the fatality rate was five percent. This situation illustrates the need to keep up medical skills, dexterity, and knowledge.

The great strengths of hospitals' boards of trustees, of their medical staffs, and the support of the communities in which they are located are some of the major obstacles to the elimination of the small voluntary hospital.

Professor Brown proposed four solutions to the voluntary hospital problem in the United States.

1. The outright merging of two or more hospitals to form a single corporation.
2. The development by large urban hospitals of satellite hospitals in suburban areas, each hospital sharing common medical and service staffs and other hospital services.
3. The coming together of several hospitals under a common management, and eventually under a common roof, each hospital retaining its identity and corporate assets. Two examples were cited. One involved hospitals in six different towns in the Smoky Mountains of North Carolina. The hospitals have signed an agreement to share a common medical staff, a common board and common management. The system allows each town to retain hospitals in which there was strong community interest.

   A second example is the Affiliated Hospitals Center in Boston which Professor Brown serves as executive vice president. The Center will bring together four Boston hospitals — The Lying-in and Parkway Divisions of the Boston Hospital for Women, the Peter Bent Brigham Hospital and the Robert B. Brigham Hospital — under a common roof where they will share common facilities, services and staffs but will retain their corporate identities.
4. The "chain" hospital system where widely scattered hospitals operate under a single organization.

Progress in Cardiology

Dr. Henry D. McIntosh, professor of medicine and director of the cardiology division of the Duke University Medical Center, was the Fourth Laurence B. Ellis Lecturer at the Harvard Medical Unit and Boston City Hospital. The Lectureship was established by students, associates and friends of Laurence B. Ellis '26 as a token of their gratitude, esteem and affection, and in recognition of his many significant contributions to cardiology and particularly for his devotion to teaching.

Dr. McIntosh is a native of Gainesville, Florida. He received the B.S. degree from Davidson College in 1943 and the M.D. degree from the University of Pennsylvania Medical School in 1950. Since then, he has been associated with Duke University, contributing widely to the field of cardiovascular medicine. In his lecture, he first paid tribute to Dr. Ellis' contributions to cardiology, by citing from his major papers concerning diagnostic methods in cardiology, capillary circulation, and his early hemodynamic observations in patients with complete heart block. Dr. McIntosh next addressed himself to the incidence and causes of sudden death. Review of studies of Helpern, Mortez, Edwards, and at Vanderbilt and Framingham clearly established that the majority of sudden deaths that occur in patients with coronary disease, are not associated with demonstrable coronary occlusion and/or acute myocardial infarct, but more often than not occur in patients with old myocardial infarcts. He then concluded that patients with old myocardial infarcts form a major portion of the population at risk for sudden death, and that the event in the vast majority of cases takes place outside a hospital. Preventive and therapeutic measures thus will have to be directed at this population and look toward the community rather than toward hospital medicine.

Dr. McIntosh next reported on his group's efforts to answer some unresolved questions with regard to sudden death, using an animal model. When ameroid constrictors are placed around both right and left coronary arteries in the pig, gradual coronary occlusions follow. After recovery from anesthesia and in a natural environment, sudden death occurs reasonably predictably with a mean survival of 20 hours. These pigs are monitored by telemetry. Hyperbaric oxygen was found to prolong survival significantly. The drug most effective in prolonging survival was quinidine. Propranolol offered some protection also. This model has established itself of value in the exploration of the pathophysiology of sudden death and may have significant implications for its therapy or prevention.

LIBRARY CARDS, BUT DIFFERENT

The illustrations on this page are part of a selection of 13— a baker's dozen, in times past— from the collection of the Boston Medical Library in the Countway Library of Medicine. Shortly before Christmas they were imprinted on note cards, the sale of which will aid the BML in carrying its share of the costs of operating the Countway complex.

The *Bulletin,* always active in the promotion of good works, gladly gives the enterprise its blessing, even to the point of suggesting that cards (each with its envelope) may be purchased from the Boston Medical Library, 10 Shattuck Street, Boston 02115, at 10 cents per card or $1.25 the set, plus 10 cents for mail order. Checks, for technical reasons, may be made out to Harvard University, which is also eagerly cooperating, and will be credited to BML.

Pencil sketch of Dr. Oliver Wendell Holmes by John White Alexander, made when Dr. Holmes dozed off while sitting for his portrait in 1883.

Inoperable: Pen and ink drawing, 1858, by Lucius Manlius Sargent, M.D., Artist to the Massachusetts General Hospital.

Woodcut illustration from *De Monstruoso Partu Apud Wormatiam,* by the German humanist and satirist Sebastian Brant. Probably the first representation of Siamese twins in printed literature.

The Dentist: Engraved by M. Darly, London, in 1788, and showing a dentist of an earlier period about to draw (extract) a tooth.

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